

Operating an Amateur Radio Station





OPERATING AN AMATEUR RADIO STATION

Including Information on Emergency Communications
and A. R. R. L. Field Organization



All ARRL Members:

League organization benefits you most as you take part in it and amateur radio is as strong as we all make it through our participation in objective ways. League operating activities and awards all are designed to add to the pleasure in and benefit from our hobby, and to our ability to communicate "in the public interest." All amateurs should belong to one of the divisions of the Amateur Radio Public Service Corps. This booklet contains basic information on this subject (pp.3, 4, 5) and also serves as a reference for the official "Rules and Regulations of the Communications Department," part of a separate publication, free on request.

Operating organization is administered in each League Section by the SCM whom the members of that Section elect to office. Operating hints, rules for most effective work, and data on all ARRL field organization appointments are given herein. Keep this book in your station for reference. Basic ARRL accomplishment awards (CP, WAS, DXCC) are explained herein. We hope they may serve as milestones in your radio lives, a challenge to objective accomplishment.

There are other challenges and recognitions. Official Station Appointments, observer service posts and leadership are for consistent activity. These are enabling mediums for bulletin and traffic services 'of, by, and for the amateur' so give them your best along the lines of your natural interest. Ask your SCM (address page 6, QST) about an appointment for you.

Develop your operating know-how and station capability. Whatever your general activity, take some part in making amateur radio strong and a useful communications agency. Have a part in ARRL's National Traffic System and the Amateur Radio Emergency Corps or the Radio Amateur Civil Emergency Service. Together they constitute our Amateur Radio Public Service Corps!

GEORGE HART, WINJM
Communications Manager

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I — OPERATING PRACTICE

Thorough knowledge of procedure and the customs of amateurs working in the various bands is necessary to achieve the highest efficiency in operating. All amateurs, particularly those new to the hobby, are urged to use standard procedure. Such use will serve to make your operating more enjoyable and allow intelligent employment of our frequencies with a minimum of confusion. Standard operating procedure is also a time saver.

A cardinal rule of good operating is to listen carefully for several minutes before you use your transmitter to get an idea of what stations are working. Listening will show whether the spot in the band you have chosen is free of interference or whether choice of another frequency is desirable. It will also show immediately what stations are working in the event you are seeking contact with a particular area. It will, in many cases, prevent you from needlessly interfering with contacts already in progress. *Always listen first, then transmit.*

CALLING STATIONS

In calling a station before contact has been established, transmit the call signal of the station you wish to work followed by the signal DE and your own call signal. For example: W6HC W6HC DE WIAW WIAW AR. In practice this procedure may be varied as may be necessary. Short calls with frequent "breaks" to listen have proved to be the best method.

Hams who do not raise stations readily may find that their sending is poor, their calls ill-timed or judgment in error. When conditions are right to bring in signals from the desired locality, the way to raise stations is to use the appropriate frequency and to call these stations. Short calls, with appropriate and brief breaks to listen will raise stations with minimum time.

THE CQ

Stations desiring communications, without, however, knowing the calls of the operating stations within range, may use the signal of inquiry, CQ, in place of the call signal of the station called in the calling formula. The CQ should be sent not more than five times without interspersing one's station identification, and the length of repeated calls is carefully limited in intelligent amateur operating. CQ is not to be used when testing or when the sender is not expecting or looking for an answer. After a CQ the frequency segment should be covered thoroughly for two or three minutes looking for replies.

Use "informative" CQ's when possible, follow CQ by an indication of direction, district, state, etc. The city, state, point of the compass, etc., is mentioned after each CQ. Examples follow. A western station looking for a contact with an east coast station calls: CQ EAST CQ EAST CQ EAST DE W6CIS W6CIS W6CIS K. A station wishing contact with Massachusetts calls: CQ MASS CQ MASS CQ MASS DE W3RV W3RV K. Never answer a call *not* addressed in your direction.

The use of special abbreviations after a CQ call to indicate from what part of the band tuning will start is a valuable aid to the receiving operator in determining what frequency to use and how long to call.

In DX work, observe calling instructions of DX stations. "10U" means call ten kc. up from his frequency, "15D" means 15 kc. down, etc.

ANSWERING

Call three times (or less), send DE, sign three times (or less), and after contact is established decrease the use of the call signals of both stations to once or twice. When an operator receives a call without being certain that the call is intended for him, he should not reply until the call has been repeated and is understood. If he receives the call but is uncertain of the call signal of the sending station, he should answer using the signal (?) instead of the call signal of this latter station.

ORZ? means "Who is calling me?" It is not used to replace CQ.

In the event that a station is called simultaneously by two or more stations and wishes to answer more than one of them, the call of each station answered should be transmitted. Example: K1LOM W2EW W4BMC DE W3IVC.

ENDING SIGNALS AND SIGN OFF

ARRL recommends use of the ending signals AR, K, KN, SK, and CL in the following manner: AR (End of transmission) should be used after call to a specific station before contact has been established. Example: W6ABC W6ABC W6ABC DE K9KZB K9KZB AR. AR is also used at the end of transmission of a radiogram, immediately following the signature, preceding identification, K (Go ahead) is recommended after CQ and at the end of each transmission during QSO when there is no objection to others breaking in. Example: CQ CQ CQ DE W1ABC W1ABC K, or W9XYZ DE W1ABC K. The signal KN, meaning "Go ahead (specific station), all others keep out," has been introduced to clarify the intent of an operator when concluding certain transmissions. It has its chief use by DX stations after directional CQ's, during schedules, and traffic and emergency networks. KN indicates that answers to trans-

missions are desired only from a certain station or group of stations. It should be used at the end of each transmission during QSO, or after a call, when calls from other stations are not desired and will not be answered. Example: W6ISQ DE PY2CK KN. SK (End of QSO) is used before signing the last transmission at the end of a QSO. Example: . . . SK W8LMN DE W5BCD. CL (I am closing station) is sent when a station is going off the air, to indicate that it will not listen for any further calls. Example: . . . SK W7HIJ DE W2JKL CL.

Please note that each signal is always used *by itself* and is never combined with another. Using AR K at the conclusion of calls is dated. *Use only one signal at a time.*

RADIOTELEPHONE PROCEDURE

In accordance with the FCC amateur service regulations, voice calls employ "This is" and "From" in lieu of the c.w. DE. An initial call (CQ) may be made as follows: Calling any station, this is W6BKY W6 BRAVO K1LO YANKEE W6BKY by for any calls.

W1LVO calls W6BKY: W6BKY this is W1LVO W1 LIMA VICTOR QUEBEC W1LVO, go ahead.

W6BKY answers: W1LVO this is (or from) W6BKY.

During the contact, transmission may be ended: W1LVO from W6BKY, Over.

In concluding a contact: W1LVO this is W6BKY clear. If W6BKY is closing his station, he concludes: W1LVO this is W6BKY clear and leaving the air. If he is *not* closing station, it is understood he is tuning for other calls.

Speed should be adjusted to permit accurate recording or writing down, with pauses and inflection to assist reception.

Conciseness. All transmissions should be as brief as consistent with clearness. There should be no "general conversation" permitted until net or schedule periods are over.

Unusual words should be avoided in the interest of accuracy if possible when drafting messages. When they unavoidably turn up, difficult words may be repeated, or *repeated and spelled*. The operator says "I repeat" when thus retransmitting a difficult word or expression.

Numerals for best understandability should be spoken as

Zee-ro	0	Fo-wer	4	Ate	8
Wun	1	Pi-yiv	5	Ni-yen	9
Too	2	Siks	6		
Thuh-ree	3	Sev-ven	7		

Repetition. A request for a repetition is made in a manner similar to that of making a call, except that the call is terminated with the word "REPEAT."

OPERATING AIDS

These aids to more effective operation can be obtained without charge from the Communications Department: ARRL Numbered Radiogram List, Net Directory, Safety Code, WAS Map. In addition, the following Operating Aids are available:

4. The AREC — Points Before, In and After Emergency.
5. DX Operating Code.
6. Contest QSO Record — to avoid duplicate QSOs.
7. ARRL Countries List and DXCC Rules.
8. States List for WAS Award.
- 9a. Amateur Message Form and QN Signals.
13. Ready Reference Information.
14. Phonetic alphabet, ARRL Ending Signals, Time Conversion Chart R-S-T System (all on one form).

II — PUBLIC SERVICE COMMUNICATIONS

Amateur radio exists because it qualifies as a service. Its continued existence depends to a great degree not on the service we have performed in the past, or on our simple potential for service, but on what we are performing *now* and will continue to perform in the future. Recognizing this principle, ARRL in 1935 organized what is now known as the Amateur Radio Emergency Corps, in 1949 the National Traffic System, and in 1963 consolidated these two public service vehicles into the Amateur Radio Public Service Corps. A third division, the Radio Amateur Civil Emergency Service, was recognized in 1966. The ARPSC combines the emergency-preparedness program of the AREC and RACES with the daily traffic-handling program of the NTS into a single strong facility for rendering continuous service to the public at the same time the emergency-preparedness program is kept always up to date by frequent drills and tests. In an emergency, the NTS serves as the vehicle for relay of traffic over medium and long distances while local AREC and RACES nets take care of local communications and deliveries. Close liaison is maintained between these three ARPSC divisions.

THE AMATEUR RADIO EMERGENCY CORPS

The Amateur Radio Emergency Corps division of ARPSC is composed of licensed amateurs who have voluntarily registered their qualifications and equipment for communication duty in the public service when disaster strikes. Every licensed

amateur, whether or not a member of ARRL or any other local or national organization, is eligible for membership in the Emergency Corps. The only other qualification is a sincere desire to serve. There are two grades of membership in the Corps: (a) Full Membership, under which the applicant pledges active participation and is therefore worked into plans for all drills, tests, etc., and (b) Limited Membership, entailing only limited participation as time permits. *The possession of emergency-powered equipment is desirable, but is not a requirement.*

Emergency Corps activities in each ARRL Section (see section organization, p. 6 of any issue of QST) are under the direction of the Section Emergency Coordinator (SEC), appointed by the Section Communication Manager (SCM) as his representative in such matters. The amateurs in each community within the Section (in some cases counties are used as local areas rather than communities) register their facilities with the local Emergency Coordinator (EC) who, in turn, represents the Amateur Service in its dealing with civic and relief agencies.

Application forms for registration in the Amateur Radio Emergency Corps are available from your community Emergency Coordinator, your Section Emergency Coordinator, your Section Communications Manager or ARRL Headquarters. AREC registration does not constitute an official ARRL appointment; it is simply a registration of your facilities and availability for emergency work, either on a full or limited basis, which the local EC keeps on file to be used as a basis for his plans and his talks with local government and relief officials regarding local emergency communications problems. The registrant is issued a card (by his EC) signifying his membership in AREC. He may also be eligible for "Official Mobile Unit" or "Emergency Radio Unit" cards.

will enable them to activate themselves without delay upon being notified, and to know exactly what to do. The best planning often requires extemporaneous modifications when all stations depended upon are not available (which is usually the case) when the real thing comes along. Knowing just what the plan is and how it operates is one of the greatest assets to any local AREC member so detailed explanations are not required.

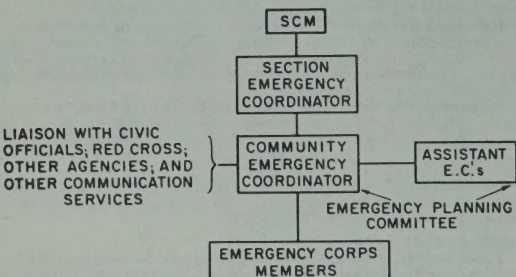
Each Emergency Coordinator should select one or more of his AREC members to be responsible for conducting liaison with a net of the National Traffic System (division of ARPSC) in order to maintain systematic contact with the nationwide traffic-handling system. Such members should be versatile, because liaison may be by various modes.

Further information and details on AREC organization are contained in the ARRL *Public Service Communications Manual*, available free of charge from ARRL Headquarters.

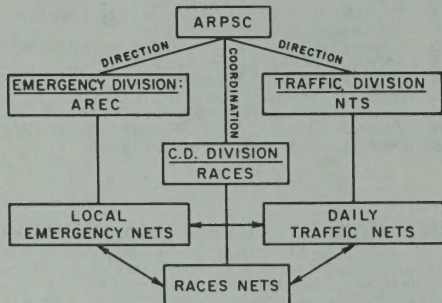
Clear Frequencies During Emergencies

During practice drills and tests, the AREC fights it out with the normal QRM situation in most of the amateur bands. In emergencies, however, FCC in Washington may declare a clear channel in accordance with section 97.107 of the amateur regulations. Application for required clear channels is made via the FCC Engineer-in-Charge of the area concerned, who will investigate the situation. If he finds that such clear channels are indeed required, he will so recommend to his headquarters, which will usually then declare such required channels as "emergency frequencies" to be used only for this purpose until further notice, or for a designated period of time.

Such declarations are usually announced via WIAW Special Bulletin. Certain amateurs may be designated by FCC as monitors with authority to report stations who refuse to cooperate.



AREC ORGANIZATION CHART



ARPSC RADIO FUNCTIONAL DIAGRAM

Organization. The preceding organization chart and radio functional diagram show the place of the Emergency Coordinator and the AREC members in the League's administrative setup for emergency preparedness. Note the importance of the Community Emergency Coordinator in heading up the local AREC organization and in conducting liaison with civic officials and relief agencies. In some communities, especially large ones, this is a big job and requires some assistance. The EC therefore may wish to appoint assistants from among his local AREC membership to assist him in various phases of his work. For example, where a large group of AREC members exists there are bound to be different interest groups (by bands used, by areas or by interests such as mobile, portable, hand-carried, etc.). The wise EC appoints assistants from among each group, and meets with them occasionally to discuss overall problems and aspects of the community situation.

As many amateurs as possible should be familiar with the plans of the Emergency Coordinator and his committee. This

IN AN EMERGENCY

- Monitor your local emergency net frequency.
- Make contact with your local EC or RO.
- Take immediate steps to follow any prearranged plans.
- Stay off the air unless or until you are *sure* you can be of assistance.
- In widespread emergencies, monitor WIAW for latest bulletins and news.

GENERAL CONSIDERATIONS IN EMERGENCIES

Use the ARRL precedence designations of Emergency, Priority (and Priority 2) and Routine in handling traffic during emergencies. Complete definitions are available on ARRL Form 3.

Use your receiver more, your transmitter less. The tendency to transmit rather than listen causes excessive QRM.

Amateur communication is point to point communication, not broadcast. Our purpose is to supply communication with as much secrecy and as little public excitement as possible.

Be sure that all official messages are properly authenticated. Do not originate messages yourself — let officials originate them and sign them. Our part in the emergency is to supply the communication — it is up to others to supply its content.

Good advance amateur planning, by EC-AREC groups, ordinarily develops efficient communications through:

- (a) Designating main stations for key points.
- (b) Manning stations for 16 or 24 hour needs, arranging relief operators.
- (c) Reducing interference levels by asking voluntary cooperation in standing by.

Analysis of station frequencies and equipment, from registrations, has an important bearing. Plans may involve (a) Local v.h.f. links, (b) Low frequency nets and schedules for point-to-point distance work, (c) Putting skilled operators on circuits having heavier loads, (d) Use of c.w. or RTTY in record communication, reducing 'phone band congestion, (e) Use of 'phone for informal discussion where secrecy is less important.

Facilities should be pooled for best results with minimum interference, and divided among the different agencies served.

NATIONAL TRAFFIC SYSTEM

NTS is the traffic division of the Amateur Radio Public Service Corps and is the principal facility for medium and long range traffic. It is organized on the basis of daily operation in normal times, completing one traffic-handling "cycle" per day, in consonance with the operating habits of the average amateur. In emergencies, NTS is geared to go into continuous operation in accordance with the needs and extent of the particular emergency encountered.

The system operates sequentially and according to a flow chart. It consists of nets at four levels and a Transcontinental

Corps. The "lowest" level (but by no means the least important) of nets are called "local" nets. These are usually emergency (AREC or RACES) nets many of them operating on v.h.f. While NTS operates a complete cycle every day, 365 days per year, the local nets often operate only once per week, and so are not as regular a facility as are other nets of the system. The next level is the "section" net, one or more in or covering each of the 74 sections of the ARRL Field Organization. At a still higher level is the region net, in some cases covering a call area, in others an arbitrary group of states or Canadian provinces generally in accordance with the wishes of the section nets. The highest net level is the area net, each covering a time zone in the continental U.S. and Canada, except that the Mountain and Pacific time zones are combined into one area and the Eastern and Western continental extremities (Maritime provinces, Alaska) and outlying possessions are attached to the area nearest them. Tying the area nets together for transcontinental coverage is the Transcontinental Corps, not a net but, as the name signifies, a corps of crack operators whose sole function is to transfer messages from one NTS area to another with efficiency and dispatch.

In a normal sequence, NTS is geared for completion of a single cycle in one evening. Local nets meet first and send representatives to section nets; then section nets meet and send representatives to the region nets; following this, region nets meet and send representatives to area nets. By the time area nets meet it is mid-evening, and operation at this level is by fast c.w. Traffic is transferred among region representatives and all traffic for other areas is handed to functionaries of the TCC, whose job it is to see that the traffic reaches its destination area. This is usually done by keeping an out-of-net schedule with another TCC functionary in the destination area and giving him the traffic, which is then put by him into the destination NTS net, or as near as he can come to it. Meanwhile, back in the area from which the message came, region nets and section nets are meeting again to clear traffic. Final delivery is theoretically accomplished the same evening if all net schedules are properly executed by the volunteer participants. Transcontinental traffic coming from west to east of course requires two cycles, because by the time the cycle is starting on the west coast it is ending on the east coast. Within a single time zone the cycle normally takes four hours and is completed once every 24 hours. In an emergency, the normal cycle could be repeated several times a day if necessary.

This is but the briefest description of the operation of the National Traffic System. Complete details are included in the *ARRL Public Service Communication Manual*, free on request.

THE RADIO AMATEUR CIVIL EMERGENCY SERVICE

In 1966, the ARRL Board of Directors formally recognized RACES as the third division of the Amateur Radio Public Service Corps. RACES has been designated the "civil defense" division of ARPSC, while AREC and NTS are the "emergency" and "traffic" divisions respectively.

RACES operates in the following frequency segments of the present amateur bands:

1800-2000 kc.*	28.55-28.75/29.45-29.65 Mc.
3500-3550/3984-4000 kc.	50.35-50.75/53.35-53.75 Mc.
7097-7125/7245-7255 kc.	145.17-145.71/146.79-147.33 Mc.
14047-14053/14220-14230 kc.	220-225 Mc.
21047-21053 kc.	*Under present restrictions

RACES is an amateur service, and its frequency segments are shared with the regular amateur service during peacetime. In the event of war, it is planned that regular (i.e., casual) amateur radio will cease and RACES will continue to operate under certain restrictions. In peacetime emergencies (such as natural disasters), RACES will operate closely with the other two divisions of ARPSC.

RACES regulations are Subpart F of the amateur regulations (Part 97). They provide for station licensing to holders of amateur operator licenses (except Novice and Technician). Application is made through the local (or county or state, as the case may be) civil defense radio officer who certifies enrollment of the applicant and identifies his place in the local c.d. communications plan. The application goes through c.d. channels to FCC, which issues the station authorization which then comes back to the individual applicant through the radio officer.

Operators holding certain types of FCC licenses are authorized to operate stations in RACES provided they carry written certification of local authority for such operation. For c.w., operators must hold conditional class or higher. For other types of operation, operators may hold any class of amateur license; however, novice-license operators may not make any adjustments that might cause improper transmitter operation.

A civil defense radio officer is appointed by local c.d. officials to be the licensing authority. Only through him can local amateurs obtain license to operate their stations or authority to operate other stations in RACES. Before appointment, he

must be investigated and certified as to loyalty by local government authority. He must hold an amateur license (except novice and technician), or 1st or 2nd class commercial operators license. In many cases he will be the local ARRL emergency coordinator (see p. 8) and the local RACES organization will work closely with the local AREC.

If you are interested in participating in this important new service, contact your local c.d. radio officer or EC. The above is but a brief resume of the regulations and leaves out many details, which are included in the *ARRL Public Service Communications Manual*, free on request.

III — OPERATING ACTIVITIES AND AWARDS

Operating in the amateur bands offers many thrills. The "unexpected" is always around the corner. Special activities are sponsored by the American Radio Relay League, adding to ham interest and fraternalism.

Within the ARRL field organization (in which appointments are open for specified lines of work in ham radio for those with the qualifications) there are all-season and quarterly activities. For all appointees and officials, quarterly tests are scheduled to develop operating ability and the spirit of fraternalism.

As in all our operating, the idea of having a good time is combined in the annual Field Day with the more serious thought of preparing ourselves to shoulder the communication load as emergencies turn up and the occasion requires. A premium is placed on the use of equipment without connection to commercial sources of power supply. Clubs and individual groups always have a good time, learn much about the requirements for knock-about conditions afield, and achieve success in testing equipment.

OFFICIAL BULLETIN TRANSMISSIONS "TO ALL RADIO AMATEURS"

The Maxim Memorial Station, W1AW (Headquarters ARRL), transmits bulletins of general amateur interest on regular schedules. These bulletins are sent by telegraph at a speed of 18 w.p.m. and repeated by voice and RTTY. Current schedules appear in *QST*. Several hundred ARRL Official Bulletin Stations supplement W1AW for transmission of current bulletins.

CODE PRACTICE

Beginning amateurs are invited to drop a note to Headquarters for the list of stations transmitting press and calls and frequencies of amateurs sending code practice. The regular W1AW transmissions of bulletins and messages sent in the Code Proficiency Program will also help.

W1AW PRACTICE SCHEDULES

Every amateur operator is invited to use W1AW code practice. Follow *QST* for latest schedules and time conversion data.

Practice transmissions are sent at 0230 GMT (0130 GMT May through Oct.) Tues., Thurs., and Sat. at 35, 30, 25, 20 and 15 words per minute, on Mon., Wed., Friday, and Sunday at 5, 7½, 10, 13, 20 and 25 words per minute, at 0030 GMT (2330 GMT May through Oct.) daily at 10, 13 and 15 words per minute and at 1400 GMT (1300 GMT May through Oct.) MWF at 5, 7½, 10, 13, 20, 25 words per minute, and 35, 30, 25, 20 and 15 words per minute, Tues. and Thurs. Opportunity for getting the League's Code Proficiency Certificate Award or a silver endorsement sticker (for increases from the original word speed certified) is given in qualifying runs once each month. See *QST* for date of *Qualifying Runs* currently scheduled. Note that where local times are used, the code practice may fall in the evening of the previous day in the U. S. and Canada.

QST each month gives the advance list of texts to be used for practice on some of the practice runs. This makes possible a direct comparison of one's fist and the tape sending. To listen and attempt to superimpose one's own sending on the same copy is to learn good sending by a process of instantaneous comparisons and speedy adjustment and correction of faults. One unconsciously gets the swing of perfect rhythmic spacing and proportioning of characters if he is fortunate enough to hear and copy a great deal of tape sending.

Acquiring code proficiency is essentially a matter of practice. Sending practice also is reflected into increased receiving speeds.

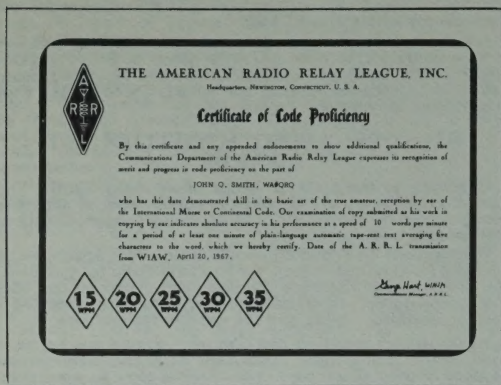
HOW TO GET A CODE PROFICIENCY AWARD

Practice copying the W1AW runs; get into amateur traffic work; follow some commercial press and weather skeds. On the dates when *QST* announces *Qualifying Runs*, be on hand and copy the test text at the best speed you can. Underline the full minute of perfect copy necessary to qualify at any speed. Tell us if you copied by ear without help except for your pencil or mill (mention which used), and if you are working for first certificate or endorsement. Send in copy and statement. We will check your paper with the official tape, then advise you of

The Amateur is Balanced

Radio is his hobby. He never allows it to interfere with any of the duties he owes to his home, his job, his school, or his community.

success or failure. Qualifying Runs take place each month. Progress in proficiency in code reception is shown after the initial test and the ARRL Certificate award by a separate dated



endorsement. This is designed for display on the certificate. Any one may try for the progressive endorsements, once they win a certificate recognition at any speed. Every licensee is invited to go "all out" for this award by sending in copy transcribed by his personal efforts on one of the qualifying runs. Get your certificate . . . then progressive endorsements.

A-1 OPERATOR CLUB

This club is to promote a high calibre of operating in the amateur bands. To become a member, one must be nominated by two operators who already belong. For the A-1 Operator Club the following points are considered by members: (1) *General keying or Voice Considerations.* Well-formed characters and good spacing will be considered before "speed." Similarly, good voice operating technique, clearness, brevity, cooperation with other operators, careful choice of words, etc., may be used as criteria in nominating 'phone operators. (2) *Procedure.* Use of correct procedure is a natural qualification. Long CQs, unnecessary testing, long calls without signing, too much repetition when not requested, and other poor practices, are grounds for disqualification. (3) *Copying ability.* This is to be judged by proficiency in copying through QRM, QRN and other difficulties, and accuracy of copy, as well as speed. (4) *Judgment and courtesy.* The "CUL 73" type operator can never make the grade. An operator should be courteous and willing to consider the other fellow's viewpoint. He should QRS or QSZ without "crabbing" when requested. He should embrace every opportunity to assist beginners and to help them along. The four points to be considered by A-1 operators in weighing candidates are applicable to all phases of amateur operating. Each counts a possible 25 points (of 100 total). Points must total 80 or over to warrant a recommendation. Any particular phase of operating embraces the four basic points, plus certain additional considerations allied with that type of operating. The traffic man should prove his ability to handle traffic accurately, indicate a working knowledge of net procedure. The operator primarily interested in DX should be weighed on his compliance with the recommendations of the ARRL DX Operating Code, his ability to work DX under difficult conditions, and his courtesy in waiting for a station to complete a contact before calling him.

No operator "asks for" a nomination; he must be recommended for the certification independently or he fails on a courtesy-judgment basis. The honor is earned by observance of the highest operating standards.

Regarding disqualification. After an operator has been nominated if exception shall be taken, or complaint made of faults in his operating work, copy of such complaint shall be sent to him in order that he may profit from constructive suggestions or explain the circumstances. In the event of a number of objections to a nomination or lacking a satisfactory explanation, the call may be added to a "disqualified" list.

DX CENTURY CLUB AWARD

We present below the rules under which the DX Century Club Award will be issued to amateurs who have worked and confirmed contact with 100 countries. The award is available to any amateur who works 100 countries after November 15, 1945, and who submits satisfactory confirmations to ARRL. Note that you may work for endorsements to certify, in steps of 10, your countries confirmed above 100. These take the form of attractive stickers.

(1) The Century Club Award Certificate for confirmed contacts with 100 or more countries is available to all amateurs everywhere in the world.

(2) Confirmations must be submitted direct to ARRL headquarters for all countries claimed. Claims for a total of 100 countries must be included with first application. Confirmation from foreign contest logs may be requested in the case of the ARRL International DX Competitions only, subject to the following conditions.

(a) Sufficient confirmations of other types must be submitted so that these, plus the DX Contest confirmations, will total 100. In every case, Contest confirmations must not be requested for any countries from which the applicant has regular confirmations. That is, Contest confirmations will be granted only in the case of countries from which applicants have no regular confirmations.

(b) Logs are available only for the last five contests. (c) Look up the Contest results as published in QST to see if your man is listed in the foreign scores. If he isn't, he did not send in a log and no confirmation is possible.

(d) Give year of Contest, date and time of QSO. (e) In future DX Contests, do not request confirmations until after the final results have been published, usually in one of the fall issues. Earlier requests not granted.

(3) The ARRL Countries List criteria (July 1963 QST p. 94-95) will be used in determining what constitutes a "country."

(4) Confirmations must be accompanied by a list of claimed countries and stations to aid in checking.

(5) Confirmations from additional countries may be submitted for credit each time 20 additional confirmations are available between 100 and 220. If you have accredited totals of 240 through 290, submissions may be made on the basis of 10 or more cards, or a number of cards which will bring your new total to a number exactly divisible by 10 (e.g. 250, 260, etc.). From 300 upwards, additional confirmations may be submitted each time 5 additional confirmations are available. Endorsements for affixing to certificates and showing the new confirmed total (110, 120, 130, etc.) will be awarded as additional credits are granted. ARRL DX Competition logs from foreign stations may be utilized for these endorsements, subject to conditions stated under (2).

(6) All contacts must be made with amateur stations working in the authorized amateur bands or with other stations licensed to work amateurs.

(7) In cases of countries where amateurs are licensed in the normal manner, credit may be claimed for stations using regular government-assigned call letters. No credit may be claimed for contacts with stations in any countries in which amateurs have been temporarily closed down by special government edict where amateurs licenses were formerly issued in the normal manner.

(8) All stations contacted must be "land stations" . . . contacts with ships, anchored or otherwise, and aircraft, cannot be counted.

(9) All stations must be contacted from the same call area, where such areas exist, or from the same country in cases where there are no call areas. One exception is allowed to this rule: where a station is moved from one call area to another, or from one country to another, all contacts must be made from within a radius of 150 miles of the initial location.

(10) Contacts may be made over any period of years from November 15, 1945, provided only that all contacts be made under the provisions of Rule 9, and by the same station licensee; contacts may have been made under different call letters in the same area (or country), if the licensee for all was the same.

(11) Any altered or forged confirmations submitted for CC credit will result in disqualification of the applicant. The eligibility of any DXCC applicant who was ever barred from DXCC to reapply, and the conditions for such application, shall be determined by the Awards Committee. Any holder of the Century Club Award submitting forged or altered confirmations must forfeit his right to be considered for further endorsements.

(12) Operating Ethics: Fair play and good sportsmanship in operating are required of all amateurs working toward the DX Century Club Award. In the event of specific objections relative to continued poor operating ethics an individual may be disqualified from DXCC by the ARRL Awards Committee.

(13) Sufficient postage for the return of confirmations must be forwarded with the application. In order to insure the safe return of large batches of confirmations, it is suggested that enough postage be sent to make possible their return by first-class mail, registered.

(14) Processing and issuing of the DXCC award is a membership service without charge to full members of ARRL in Canada, the U. S. and possessions (including Puerto Rico). It is issued free of charge also to foreign amateurs not included in the above. All others are subject to a service charge equal to or less than the cost of processing. The service charge must be remitted, or a statement of ARRL membership included, with all applications for DXCC or endorsements thereof. Following is a scale of service charges: For new DXCC applications, \$4.00; DXCC endorsement submissions, \$1.00. These charges apply to each group of cards each time they are processed, whether or not

they are the same cards. Note that the general type DXCC (C. W./Phone) and the phone DXCC are two separate awards, require separate processing and consequently are subject to separate service charges. Postage costs for return of cards are not covered by the service charge.

(15) Decisions of the ARRL Awards Committee regarding interpretation of the rules as here printed or later amended shall be final.

(16) Address all applications and confirmations to the Communications Department, ARRL, 225 Main Street, Newington, Conn. 06111.

5-BAND DXCC

The purpose of the 5BDXCC Award is to encourage more uniform DX activity throughout the amateur bands, encourage the development of more versatile antenna systems and equipment, and provide a challenge for old timers as well as newcomers to DXing. This award does not supersede the basic DXCC Award, but is in addition to it.

(1) The 5BDXCC Award is available to all licensed amateurs, except that in Canada, the United States and possessions, and Puerto Rico, the applicant must be a full member of ARRL.

(2) DXCC Rules 6, 7, 8, 9, 11, 12, 15 and 16, shall apply to 5BDXCC; DXCC Rule 10, with substitution of a date of January 1, 1969, shall also apply. Anyone disqualified from 5BDXCC under DXCC Rule 11 shall automatically be disqualified from DXCC. Anyone disqualified from DXCC is not eligible for 5BDXCC.

(3) The 5BDXCC Award will be issued after checking submission of a minimum of 500 different confirmations representing two-way communications with 100 different "countries" (per the ARRL Countries List in effect at the time of application) on each of five amateur radio bands. Phone and c.w. segments of the band do not count as separate bands for this award.

(4) Confirmations showing contacts by any legal mode will be accepted. However, no contacts made by cross-mode or cross-band are acceptable, nor will endorsement for mode be given or indicated. Contacts using repeaters or repeater satellites are not acceptable.

(5) Application for 5BDXCC will be accepted only if submitted completely on a standard form supplied by ARRL Headquarters. A charge of \$10.00 (U.S.) will be made for each such form. This charge will cover the cost of return of cards by first-class registered mail and the purchase and forwarding of a personalized plaque commensurate with the difficulty and effort required to achieve this award.

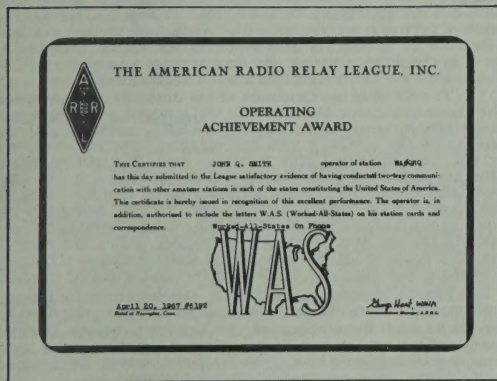
(6) Only QSL card confirmations will be accepted. No credits will be given for confirmations via DX contest or other logs.

(7) Only confirmations showing a contact date of January 1, 1969, or later will be accepted for credit for this award.

WORKED ALL STATES AWARD

(1) The WAS award is available to all amateurs, U. S. or foreign. Endorsements for the WAS award are also available for special modes, bands or other purposes, but only upon re-submission of all fifty cards for each endorsement.

(2) Two-way communication must be established on amateur bands with each state. Any or all bands may be used for a general WAS. The District of Columbia may be counted for Maryland.



(3) Contacts must all be made from the same location, or from locations no two of which are more than 25 miles apart.

(4) Contacts may be made over any period of years. Contacts must be confirmed in writing, preferably in the form of QSL cards. Confirmations must show your call and definitely indicate that two-way communication was established. Contacts made with Alaska dated prior to Jan. 3, 1959, or with Hawaii dated prior to Aug. 21, 1959, cannot be counted.

(5) Contacts made through "repeater" devices or any other power relay method cannot be used for WAS confirmation.

(6) Written confirmations must be submitted and must be accompanied by sufficient postage for their return.

(7) In addition to postage, a service charge of \$2.00 is made to any applicant in Canada or the U.S. and possessions (including Puerto Rico) who is not a full ARRL member. Those not remitting the service charge are required to include a membership statement. Other foreign applications are processed and WAS issued without a service charge.

(8) Place the cards in alphabetical order by state, and furnish a list of calls, modes, dates etc. Convenient application forms are available upon request.

(9) Address all applications to the ARRL Communications Department, 225 Main Street, Newington, Connecticut, U. S. A. 06111.

5-BAND WAS

The purpose of the 5BWAS Award is to encourage more uniform activity throughout the amateur bands, encourage the development of more versatile antenna systems and equipment, and provide a challenge for old timers as well as newcomers. This award does not supersede the basic WAS, but is in addition to it.

(1) The 5BWAS Award is available to all licensed amateurs, except that in Canada, the United States and possessions, and Puerto Rico, the applicant must be a full member of ARRL.

(2) The 5BWAS will be issued after checking submissions of confirmations representing two-way communications with the 50 United States on each of five amateur radio bands. Phone and c.w. segments of the band do not count as separate bands for this award.

(3) Confirmations showing contacts by any legal mode will be accepted. However, no contacts made by cross-mode or cross-band are acceptable, nor will endorsement for mode be given or indicated. Contacts using repeaters or repeater satellites are not acceptable.

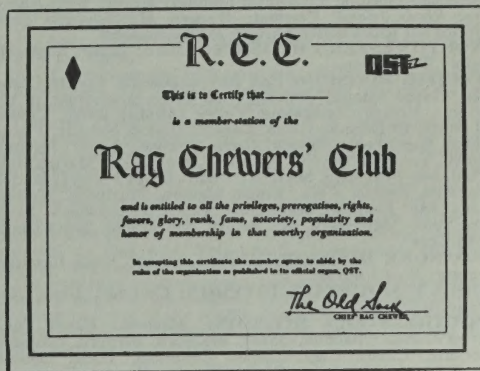
(4) Application for 5BWAS will be accepted only if submitted completely on a standard form supplied by ARRL Headquarters. A charge of \$10 (U.S.) will be made for each such form. This charge will cover the cost of return of the cards by first-class registered mail and a special plaque award.

(5) Only written confirmations will be accepted. No credits will be given for confirmations via contest logs.

(6) Only confirmations showing a contact date of January 1, 1970 or later will be accepted for credit for this award.

RAG CHEWERS' CLUB

The Rag Chewers' Club is designed to encourage friendly contacts and discourage the "Hello-Goodbye" type of QSO. Its purpose is to bond together operators interested in honest-goodness rag chewing over the air.



How to qualify: Chew the rag with a member of the club for at least a solid half hour.

How to apply: Report the conversation (showing date, time, call) to RCC, c/c ARRL, 225 Main Street, Newington, Conn. 06111. Please furnish your full name and mailing address (in-

cluding ZIP code). And s.a.s.e. would be appreciated.

How to nominate: If you wish to nominate someone for RCC, send the full information to the *nominee* (not to ARRL) and he, in turn, will make the application.

How to Stay In: (1) Be a conversationalist on the air instead of one of those tongue-tied infants who don't know any words except "cuagn" or "QRU" or "nil." Talk to the fellows you work with and get to know them. (2) Operate your station in accordance with the radio laws and ARRL practice. (3) Observe rules of courtesy on the air. (4) Sign "RCC" after each call so that others may know you can talk as well as call.

OLD TIMERS' CLUB

The Old Timers Club is open to anyone who holds an amateur call at the present time, and who held an amateur license (operator or station) 20-or-more years ago. Lapses in activity during the intervening years are permitted.

If you can qualify as an "Old Timer," send us a brief chronology of your ham career, being sure to indicate the date of your first amateur license and your present call. If the evidence submitted proves you eligible for the OTC, you will be added to the roster and will receive a membership certificate.

IV — ARRL FIELD ORGANIZATION

The United States and Canada are divided into sixteen ARRL Divisions for organization purposes, sub-divided into 74 Sections for operating purposes, as listed on page 6 of any QST.

ATLANTIC DIVISION: *Delaware: Eastern Pennsylvania* (Adams, Berks, Bradford, Bucks, Carbon, Chester, Columbia, Cumberland, Dauphin, Delaware, Juniata, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Lycoming, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, Pike, Schuylkill, Snyder, Sullivan, Susquehanna Tioga, Union, Wayne, Wyoming, York); *Maryland-D.C.:* *Southern New Jersey* (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Salem); *Western New York* (Allegany, Broome, Cattaraugus, Cayuga, Chautauque, Chemung, Chenango, Clinton, Cortland, Delaware, Erie, Essex, Franklin, Fulton, Genesee, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Oswego, Otsego, Saratoga, St. Lawrence, Schoharie, Schuyler, Seneca, Steuben, Sullivan, Tioga, Tompkins, Warren, Washington, Wayne, Wyoming, Yates); *Western Pennsylvania* (those counties not listed under Eastern Pennsylvania).

CENTRAL DIVISION: *Illinois; Indiana; Wisconsin.*

DAKOTA DIVISION: *Minnesota; North Dakota; South Dakota.*

DELTA DIVISION: *Arkansas; Louisiana; Mississippi; Tennessee.*

GREAT LAKES DIVISION: *Kentucky; Michigan; Ohio.*

HUDSON DIVISION: *Eastern New York* (Albany, Columbia, Dutchess, Greene, Orange, Putnam, Rensselaer, Rockland, Schenectady, Ulster, Westchester); *N.Y.C.-L.I.* (Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk); *Northern New Jersey* (Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union, Warren).

MIDWEST DIVISION: *Iowa; Kansas; Missouri; Nebraska.*

NEW ENGLAND DIVISION: *Connecticut; Maine; Eastern Massachusetts* (Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk); *Maine; New Hampshire; Rhode Island; Vermont; Western Massachusetts* (those counties not listed under Eastern Massachusetts).

NORTHWESTERN DIVISION: *Alaska; Idaho; Montana; Oregon; Washington.*

PACIFIC DIVISION: *East Bay* (Alameda, Contra Costa, Lake, Napa, Solano); *Hawaii* (and U. S. possessions in the Pacific); *Nevada; Sacramento Valley* (Alpine, Butte, Colusa, Del Norte, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo, Yuba); *San Francisco* (Humboldt, Marin, Mendocino, San Francisco, Sonoma); *San Joaquin Valley* (Amador, Calaveras, Fresno, Kern, Kings, Madera, Mariposa, Merced, Mono, San Joaquin, Stanislaus, Tulare, Tuolumne); *Santa Clara Valley* (Monterey, San Benito, San Mateo, Santa Clara, Santa Cruz).

ROANOKE DIVISION: *North Carolina; South Carolina; Virginia; West Virginia.*

ROCKY MOUNTAIN DIVISION: *Colorado, Utah, New Mexico, Wyoming.*

SOUTHEASTERN DIVISION: *Alabama; Canal Zone; Eastern Florida* (Alachua, Baker, Bradford, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Columbia, Dade, DeSoto, Duval, Flagler, Gilchrist, Glades, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Lake, Lee, Levy, Manatee, Marion, Martin, Monroe, Nassau, Okeechobee, Orange, Osceola, Palm Beach, Pasco, Pinellas, Polk, Putnam, St. Johns, St. Lucie, Sarasota, Seminole, Sumter, Suwanee, Union, Volusia; *Georgia; West Indies* (Puerto Rico and U. S. possessions in the Caribbean); *Western Florida* (those counties

not listed under Eastern Florida).

SOUTHWESTERN DIVISION: *Arizona; Los Angeles; Orange* (Inyo, Orange, Riverside, San Bernardino); *San Diego* (Imperial, San Diego); *Santa Barbara* (San Luis Obispo, Santa Barbara, Ventura).

WEST GULF DIVISION: *Northern Texas* (Anderson, Andrews, Archer, Armstrong, Bailey, Baylor, Bell, Borden, Bosque, Bowie, Briscoe, Brown, Callahan, Camp, Carson, Cass, Castro, Cherokee, Childress, Clay, Cochran, Coke, Coleman, Collin, Collingsworth, Comanche, Cooke, Coryell, Cottle, Crane, Crosby, Dallam, Dallas, Dawson, Deaf Smith, Delta, Denton, Dickens, Donley, Eastland, Ector, Ellis, Erath, Falls, Fannin, Fisher, Floyd, Foard, Franklin, Freestone, Gaines, Garza, Glasscock, Gray, Grayson, Gregg, Hale, Hall, Hamilton, Hansford, Hardeman, Harrison, Hartley, Haskell, Hemphill, Henderson, Hill, Hockley, Hood, Hopkins, Howard, Hunt, Hutchinson, Irion, Jack, Johnson, Jones, Kaufman, Kent, King, Knox, Lamar, Lamb, Lampasas, Limestone, Lipscomb, Loving, Lubbock, Lynn, McLennan, Marion, Martin, Midland, Mills, Mitchell, Montague, Moore, Morris, Motley, Nagodoches, Navarro, Nolan, Ochiltree, Oldham, Palo Pinto, Panola, Parker, Parmer, Potter, Rains, Randall, Reagan, Red River, Roberts, Rockwall, Runtels, Rusk, Scurry, Shackelford, Shelby, Sherman, Smith, Somervell, Stephens, Sterling, Stone-wall, Swisher, Tarrant, Taylor, Terry, Throckmorton, Titus, Tom Green, Upshur, Upton, Van Zandt, Ward, Wheeler, Wichita, Wilbarger, Winkler, Wise, Wood, Yoakum, Young); *Oklahoma; Southern Texas* (those counties not listed under Northern Texas).

CANADIAN DIVISION: *Alberta; British Columbia; Manitoba; Maritime* (Nova Scotia, New Brunswick, Prince Edward Island, Labrador, Newfoundland); *Ontario; Quebec; Saskatchewan.*

Each Division elects its director to represent it on the ARRL Board of Directors. The Board determines the policies of the League which are carried out by a staff acting according to the instructions of the Board. When the Board is not in session, the League's Executive Committee, a Board-designated group, can act for the Board, as specified in the Articles of Association.

While the divisions are political in nature and elected directors as a body determine the overall policies of the League, the 74 "sections" are for administrative-operating activities and are under the jurisdiction, for this purpose, of Section Communications Managers (SCMs), elected every two years by the section full ARRL membership. SCMs make and cancel appointments within their respective jurisdictional boundaries, write monthly activities reports for QST, and perform other tasks to be described later. Rules governing these and other Communications Department functions are included in the Articles of Association and Bylaws of the League and have the force of Bylaws. Descriptions of the official posts constituting your ARRL field organization follow. There is a station appointment to fit almost every kind of operating interest.

SECTION COMMUNICATIONS MANAGER

1. The SCM is elected as the section's operating-administrative leader in accordance with procedures detailed in the "Rules and Regulations of the Communications Department," part of another publication free to members. Candidates must have been full members of the League and licensed amateurs of General Class (Canadian Advanced Amateur class) or higher for at least two years immediately preceding nomination. The SCM is responsible for building and maintaining the section organization in the name of ARRL, and devising means through amateur radio operations of promoting high general interest and *esprit de corps*. His efforts are directed to practical communications objectives, such as creation and maintenance of section network activities in all bands and modes available; attention to emergency preparedness and other communications in the public interest. He may appoint an assistant SCM, if required, for general section administration assistance.

2. The SCM in performance of his duties is responsible to the Communications Manager. He will render a monthly report or activity summary to headquarters ARRL, including activity reports of the section's amateur stations, whether members or not, and including club items as well. He will maintain accurate records of appointments, endorsements and cancellations and submit form card notifications to Headquarters, as the basis for the official appointment record. Assistance to guide in his program along unified lines will be provided. Meeting discussions and teamwork principles will assist him in reaching goals he sets for the section while stressing skill, good procedure and high standards of individual operator conduct.

3. The SCM may make ARRL appointments to League members only, these to conform to qualifications prescribed in the Rules and Regulations of the Communications Department and as set forth in this booklet. Operating radio tests and/or station inspections under his direction may be required at his discretion as pre-requisite to appointment.

4. The SCM appoints a Section Emergency Coordinator, Route Managers, Phone Activities Managers, Official Observers, Emergency Coordinators, Official Experimental Stations,

Official Phone Stations, Official Relay Stations, and Official Bulletin Stations, or effects termination or annual endorsement of such appointments in his Section. Continuing activity along the line of appointment, and consistent individual reports of such activity shall constantly serve as the criteria for such action. In his leadership he shall try to insure ARRL recognition and activity in each amateur group; also to grant appointments to best qualified operators and stations for the services they can render each other and the public interest. Representation in as many cities and clubs as feasible shall be the goal. Geographic and frequency band distribution for coverage will require special studies with relation to bulletin dissemination through OBS and cooperative monitoring by OOs.

5. The SCM issues ARRL Section Net certificates to amateurs in ARRL sponsored or recognized nets at section level, those so recognized to meet a minimum standard of participation and activity prescribed by him. He shall issue Brass Pounders' League certificates to those members whose traffic records meet standards set forth currently in *OST*.

ARRL LEADERSHIP APPOINTMENTS

It has long been ARRL policy to assist each group interest in amateur radio along the lines of natural interest, by activities, by station and leadership appointments. Each kind of appointee renders some special service to amateur radio as a whole, or a service to an individual brother amateur at the same time the appointee enjoys the radio aim of his choice. Group work with fellow amateurs of like interest returns definite benefits to the appointee.

To further the interests of groups of appointees the leadership appointments enumerated in the following paragraphs are maintained. Organization leaders are chosen carefully by the Section Communications Managers. Holders of leadership appointments may wear the League emblem with the distinctive deep-green background. To insure continued interest, initiative, and activity each appointment must be endorsed annually by the SCM. Both the leadership and station appointments require annual endorsement to keep them in effect. Leadership appointments require full ARRL membership.

Section Emergency Coordinator

The Section Emergency Coordinator (SEC) is, in effect, "assistant SCM for AREC organization." He must hold a Conditional Class license or higher and is appointed by the SCM to take care of all matters within the section pertaining to emergency communication and AREC organization on a section-wide basis. His duties include the following:

1. The encouragement of all groups of community amateurs to establish a local emergency organization.

2. Recommendations to the SCM on all section emergency corps policy and planning, including suggestions for community Emergency Coordinator appointments or cancellations and determination of areas of jurisdiction of each amateur so appointed. Note that the SEC does not make (or cancel) such appointments; he simply recommends them to his SCM.

3. Promotion of AREC membership drives, meetings, activities, tests, procedures, etc., at section level.

4. Collection and consolidation of Emergency Coordinator monthly reports, and submission of monthly progress summaries via his SCM to ARRL headquarters.

5. Maintenance of contact with other communications services and liaison at section level with all agencies served in the public interest, particularly in connection with civil defense and Red Cross functions.

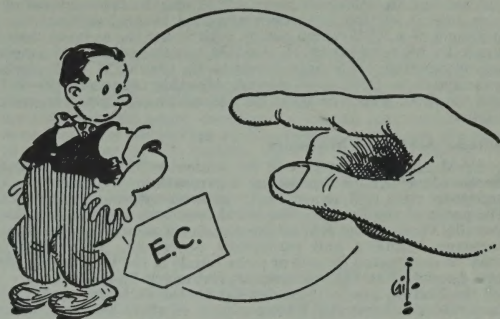
The SEC post is one of top importance in the section, and he should devote all possible energy and effort to this one important organization program for Amateur Radio. *There is only one SEC appointed in each Section of the ARRL Field Organization.* Some SECs unofficially designate an assistant SEC from among regularly-appointed ECs to help them in special work or promotion of AREC activity in the section. However, they carry no official status other than EC.

Emergency Coordinator

Appointment of an Emergency Coordinator should be made by the SCM in every community where a qualified amateur of Technician Class or higher, can be found, since it is on his work and that of the local amateurs working with him that the entire AREC organization is based. While his duties are varied and manifold, they can be generally described as promotion and enhancement of activities of the Amateur Radio Emergency Corps for public service at the local (community, county or other area designated by the SEC/SCM) level. From the time of his appointment, the EC should proceed as follows (or review each phase herewith if he is succeeding someone else):

- (1) Call a meeting of all local amateurs, giving a talk on the importance of emergency preparedness both to Amateur Radio and your community, and outlining the need for amateur participation in the Emergency Corps. If possible, the presence of a community official will lend prestige and dignity to the gathering and bring better attendance. At the conclusion of this meeting, sign up all amateurs present in the Emergency Corps, either as "full" or "limited" members (see p. 4).

- (2) From among the list of registrants, using personal knowledge about them as a guide, designate assistants for an emergency planning committee. Then call a committee meeting to discuss initial plans and make appointments.



DOES YOUR COMMUNITY HAVE ONE?

- (3) Determine which of the local public services, utilities and agencies need and/or want to plan use of auxiliary services of the local AREC organization in performance of their functions during an emergency. This is best done by personal contact with representatives of the agencies concerned. Such contact should certainly include civil defense officials and the disaster chairman of the local Red Cross chapter, and might also include local military authorities, utilities, the weather bureau, broadcast stations, police, fire, large local manufacturing concerns and many others. The objective of such contact is twofold: first, to make available to them complete knowledge of the extent of amateur communication facilities; second, to determine from them their estimated probable emergency needs and the important outside points with which they must maintain contact. Generally speaking it is *not* wise to promise them any exclusive operators or facilities.

- (4) In the light of the information and knowledge of overall community needs so gathered by the EC, the planning committee (of EC and Assistant ECs) can then hold another meeting to draft detailed AREC plans to serve the community.

- (5) Establish appropriate drill periods and simulated emergency tests of equipment and operators and report progress monthly to the SEC, on forms provided for that purpose by ARRL Headquarters.

The EC in the regular performance of his functions as outlined above, also has certain routine administrative duties which can be summarized as follows:

- (1) Maintain full and current information on AREC registrations (see p. 4).

- (2) Issue AREC membership cards to all registrants.

- (3) Issue certificates to Assistant ECs (not an SCM appointment) and assign each a specific sub-leadership duty in the local AREC organization.

- (4) Report the status of your group to the SEC each month on ARRL Form 5.

- (5) Issue Official Mobile Unit (Form 30) and Emergency Radio Unit (Form 31) cards to those AREC members who qualify for them.

- (6) Coordinate and cooperate with ECs in adjacent areas of jurisdiction. The SEC will be responsible for tying all local organizations together under their respective ECs.

The area of jurisdiction of each EC is determined by the SCM at the recommendation of the SEC. It may be a community, a county, or a group of several counties or communities, depending on the AREC organizational plan of the section. Although there is no appointee level between local (the EC) and section (the SEC), it is permissible for the SCM to give an EC jurisdiction over several other ECs within the former's area of jurisdiction if the section organizational plan is drawn up that way. This usually "complicates the book-keeping" and should be avoided if possible.

The principles to be observed, and ways and means of establishing a single strong amateur facility at the local level are discussed in detail in the *ARRL Public Service Communications Manual* which is standard equipment for all ECs and their AREC members.

Route Manager

For coordinating and supervising c.w. traffic-handling activities in the section, the SCM appoints one or more Route Managers. The number of RMs appointed may depend on a section's geographical size, or the number of c.w. nets operating within the section, or other factors having to do with the way

The Amateur is Loyal

He owes his amateur radio to the American Radio Relay League, and he offers it his unswerving loyalty.

the section is organized. The RM is usually a c.w. net manager. In some cases, he may be the c.w. net manager, and therefore the only RM. In larger sections, he may be a c.w. net manager along with several others, and the SCM may see fit to appoint a "chief RM" to coordinate all c.w. activities throughout the section. In still other cases, a RM may be the manager of a c.w. net at section level encompassing several sections, or a manager of a NTS region net, in which case the appointment is made by his resident SCM. An RM has the additional duty of recommending ORS appointments to the SCM and testing candidates for ORS appointment. Monthly reports to the SCM are required. The RM must be a Conditional Class licensee or higher.

Phone Activities Manager

PAM appointment(s) will be made by SCMs to maintain Section-level phone operating organization, to encourage or recognize nets and/or sponsor voice operational activities in the name of the League. The PAM functions and qualifications parallel those of the RM in the encouragement of systematized message handling and exemplary procedure. VHF PAM(s) may be designated for one or more bands in the v.h.f.'s (6-, 2-m, etc. bands). The field of interest, frequency bands and part or all the Section area will be defined by the SCM for each PAM to avoid conflicts. All PAMs report to their SCMs monthly and should designate liaison stations to other National Traffic System nets for fullest traffic flow. A VHF PAM may be asked to recommend or test applicants for OVS, likewise the PAM in h. f. bands may, as requested, test those who apply for OPS. VHF-PAM appointees may be Technician Licensees.

ARRL STATION APPOINTMENTS

Amateur Licensees who are full ARRL members and meet set appointment qualifications are invited to contact SCMs to take on Station and Leadership appointments, where open, along the lines of their special interest. With the exception of the Official V.H.F. Station appointment, such appointments are not available to Novices. Technicians may receive Official Bulletin Station posts, as well as OVS, as there are openings for these v.h.f. services. By the end of the first 12 months in amateur radio all newcomers should have adequate experience to qualify for any of these ARRL appointments.

Official Relay Station, Official V.H.F. Station, Official Phone Station, Official Bulletin Station and Official Observer appointees receive an appointment certificate, bulletins from Headquarters, and reporting forms on which to make their monthly reports to the SCM. Holders of station appointments are entitled to wear the distinctive blue ARRL pin, which is similar to the regular membership pin except that it has a blue instead of a black background.

In return for recognition and appointment privileges, Station appointees are expected (a) to report activities monthly to the SCM whether or not a special reporting form is available; (b) to keep stations on the air, i.e. in readiness for operation and in actual service; (c) to follow ARRL operating practices; (d) to take part in the activities of the League whenever possible; (e) to hold message files ready for any call by the SCM or licensing authority. Reports are due on the 1st of each month covering the preceding month's work. The monthly report is the *criterion of activity*. Regular reports are pre-requisite for annual endorsement and renewal of all League appointment certificates.

Appointments may be canceled by SCMs when three consecutive reports are missed, and evidence of regular work and reports must be submitted before such a station may be reinstated. "Earned reinstatements" may be made at the discretion of the SCM.

Readers who are licensed amateurs are urged to seek station appointments in the category indicated by their qualifications and experience. The SCM will be glad to send you necessary application forms if you ask when you report activity, or use the application form on page 20 of this booklet.

Official Relay Station

Every radiotelegraphing, RTTY or other amateur interested in traffic work and operating activities who can meet qualifications is eligible for appointment of his station as ARRL Official Relay Station. Brass pounders handle traffic because they enjoy such work. There is fun in efficient operation; pride in accomplishing something; opportunity to demonstrate operating proficiency at the same time this is maintained and increased. The potential value of the operator who handles traffic to his community and country is enhanced by his ability, and the readiness of his station and schedules to function in the community interest in case of emergency. Operators with good signals and personal responsibility toward the communications they handle, seek and hold Official Relay Station appointment. Traffic-awareness is often the sign by which mature and experienced amateurs may be distinguished.

1. ORS must be able to transmit and receive at 15 words per minute or higher speeds.

2. ORS agrees to follow standard ARRL operating practices (use proper message form, ending signals, abbreviations),

likewise exemplary technique such as tune-up outside heavy operating hours and using dummy antenna.

3. ORS must display a high degree of interest in c.w. traffic activities, nets, schedules, etc. or equivalent RTTY work.

ORS handle communications speedily and reliably and set the example in technical and operating procedures. They are ready for every opportunity of service to the public or amateur radio that may come their way, whether a special emergency, test, experiment, or just in the line of ordinary operation. They are pledged to deliver and relay promptly traffic that comes their way. New ORS/OPS applicants communicate by radio with a Section official and receive approval of this official or his representative. ORS is a "top" appointment with a long history of communication results. It carries respect for the holder as he earns it through practical station operations.

Official Phone Station

This appointment is for every qualified h.f. amateur equipped for 'phone operation who takes pride in the manner of signal he puts on the air, and who aims to have his station really accomplish worthwhile communication work. Official Phone Station appointees must endeavor to live up to the Amateur's Code of good fraternalism and operating equality.

1. OPS agree to support Section nets and schedules capable of relaying traffic or other practical communications. When handling traffic, standard ARRL procedure and message form will be used. Net operations help earn appointment.

2. OPS use circuit precautions that avoid overmodulation and employ indicators in their transmitters to detect maladjustments.

3. Major adjustment of transmitters is completed outside of heavy operating hours. Tests should be performed using dummy antennas, and radiating antennas connected only for bona fide voice communications.

4. OPS endeavor at all times to make the operation of their stations an example to be looked up to by other amateurs; they agree to participate where possible in activities sponsored by Section PAM and in Section voice nets and/or operating tests. They will use uniform procedure as formulated and codified by ARRL for the furtherance of radiotelephone work.

The Phone Activities Manager, as directed by the SCM, may conduct station inspections of Official Phone Station applicants. The quality of operating, as well as the station signal, must meet satisfactory standards. The OPS appointee endeavors at all times to make the operation of his station an example to be looked up to by other amateurs. His operating courtesy and procedure should be of such nature as to inspire willingness among the amateur fraternity to improve their own standards of voice operation.

Appointment certificates are issued for a one-year period. To rate endorsement, appointments must be kept in effect by activity, continuing high-level standards of operation and monthly reports to the SCM.

Official VHF Station

Operational and experimentally inclined amateurs find this the appointment to help in their aims. Official VHF Station work is dedicated to progress in developing successful communications systems and equipment applications, and in collecting propagation data applicable using any or all amateur bands above 50 Mc. RTTY amateurs are also eligible. Net operations and readiness for Public Service are encouraged.

1. The appointment is available only to amateurs operating stations on one or more bands, 50-54 Mc., 144-148 Mc. and higher frequency bands.

2. Applicants indicate on forms provided, those problem and experimental projects in which they have a continuing interest.

3. Applicants agree to report their contacts, observations, net participation and progress monthly via field organization channels. Detailed descriptions of unusual conditions, distances worked or signals and effects observed, identifying station calls, pertinent information will be included.

4. Stabilized signals, non-radiating receivers and the like will be used, as appropriate to the frequency and mode of emission, in accordance with the highest amateur ethics.

5. To earn or maintain appointment, OVS may also exemplify and demonstrate the capabilities of v.h.f. section nets for rendering communications service to the public and amateur radio. When handling traffic, standard ARRL procedure and message form will be followed, and contacts maintained for liaison with NTS to assist in the over-all nationally-integrated traffic system, as feasible.

The operation and reporting of OVS results (vhf-uhf or shf) have this purpose as well as the aim to report contacts and data to aid in discussion and knowledge of transmission phenomena in the higher frequency bands.

If operating a v.h.f. station on two or six meters or higher frequencies, get lined up for OVS appointment. ARRL issues short notices of experimental and communications tests to OVS at timely intervals.



THERE IS A PLACE FOR EVERY LICENSED AMATEUR IN THE EMERGENCY CORPS

Official Bulletin Station

Each Official Bulletin Station appointee receives information on timely subjects from Headquarters to be put on the air at scheduled times. OBS are appointed by SCMs only in accordance with geographic needs for local coverage, preference being given stations having available considerable amounts of power, and preferably those who can copy the Headquarters station in advance of receipt of mail information, or otherwise give superior radio service. Applicants must (a) guarantee a minimum of three scheduled transmissions per week; (b) adhere to schedules agreed upon with SCM; and (c) return information on current or revised schedules on periodic surveys.

Applicants for this appointment must submit their qualifications to the SCM with the proposed dates, times and frequencies for transmission of the bulletins. In deciding on the times of transmission schedules, preference should be given to those times in designated bands when the largest number of amateurs are listening. SCMs cancel appointments of stations not adhering to the schedules agreed upon, and/or not returning information on periodic surveys of the bulletin system. OBS are expected to send a monthly activity report to the SCM.

Official Observer

An ARRL Cooperative Monitoring Service is supported by appointees known as Official Observers who have saved many a ham from FCC citations by suggesting he look into his signal quality before technical maladjustments have come to FCC attention. Official restriction is invited by careless or intentional disregard of regulations. Observers protect us from such. They may report "a.c." notes, unstable signals, overmodulation, parasitics, harmonics, off-frequency signals, and other abuses.

ARRL Official Observers are classified for the type of work in which they engage as follows:

- Class I. Precise frequency checking. (± 1 kc. at 14 Mc.)
- Class II. General frequency checking (± 5 kc. at 14 Mc.)
- Class III. Radiotelephone checks: Modulation quality, splatter, flat-topping.
- Class IV. Radiotelegraph and/or RTTY checks: Notes, clicks, chirps, stability.

All classes of Observers will send cooperative reports to stations heard radiating spurious emissions or improperly strong harmonics. Only Class I and II (frequency measuring) Observers will provide frequency measurement to indicated tolerances. League Observers will be pleased to have you call upon them for assistance within the scope of their particular duties. "Friendly service to brother amateurs" is the watchword of the individual ARRL Observers.

To ensure top OO service to members, SCMs require at least four years General Class (or higher) experience. Ten or more amateurs with the best technical know-how, tact, and equipment are appointed per section. Observers must possess equipment appropriate to the observing fields to be covered, as prerequisite to appointment. Class I and II Observers must measure within their prescribed limits of accuracy on at least two of four Frequency Measuring Tests ARRL runs each year, to retain their appointments. New Observers must pass such a test to qualify. All initial appointments will be made as Class III or IV unless actual measurement results are available to aid classification. All classes of OOs must report monthly activity to SCMs. Appointments may be canceled for inactivity of three months or more, or renewed for consistent activity.

Applications for Observer appointment will be welcomed from members who would like to help in bettering operating conditions in the different amateur bands. Each SCM will appoint qualified amateurs who will pledge care in observation and diligence in mailing report forms. ARRL provides, on request of Official Observer appointees, postal card notification

forms and report forms, as well as detailed instructions and statement of policy following appointment.

RADIO CLUBS

ARRL will be pleased to supply organizers of new amateur radio clubs with suggestions for organizing, sample constitution, outline of courses of study and data gleaned from the experience of other clubs. A local club can be a powerful local influence for good in amateur radio as well as a forum for technical discussion. The help given newcomers by clubs guides their activity through educational means. Appropriate club committees and programs further the cause of SAFETY in member installations and assist members in solving interference problems. All clubs not having an interference committee are urged to ask for our ARRL bulletin on TVI COMMITTEES. The League has a series of aids for such interference committees. Emergency organization and operating are constantly sources of fruitful publicity in many club groups. The alert club minimizes frictions with other services and develops positive public relations values for the Amateur Service.

AFFILIATION

It is the policy of the League to grant affiliation to any local non-commercial amateur radio society having (a) 51% of the club membership made up of licensed (United States or Canadian) amateurs and (b) 51% of its voting members also members of the ARRL when the club adopts appropriate resolution expressing its aims and policies and when after review it receives the approval of the Division Director having jurisdiction. It is the constant aim of the ARRL to maintain a bond of affiliation with local radio societies of kindred aims and purposes, since at different times in the League's history this has made possible unity of action and strength in representing amateur views successfully and forcefully in legislative and regulatory matters. Forms concerning affiliation will be sent by ARRL on request. Affiliated societies have first call on all Training Aids Program material, including visual aids, code training equipment and "quizzes," made available by ARRL.

Bonafide high school or college amateur radio clubs may be affiliated on the basis of one full ARRL member, having the 51% requirement.

V — HANDLING MESSAGES

Amateur message service does not compete with other services, since there are no charges and can be no guarantee. Provided no compensation is involved and FCC and International regulations are complied with, messages may be accepted from anyone for sending by amateur radio.

Every amateur who participates in a Section Net or between-section schedules, or private schedules to four or five points or directions is making himself more skilled and contributing something to emergency readiness. It's traffic fun and self-training combined. Public appreciation and added security for amateur radio result.

The League produces a number of aids to traffic handlers, such as the Net Directory, CD Form 3, Operating Aid 9A and the *Public Service Communications Manual*, all available free on request. All amateurs who pride themselves as true communicators should be familiar with and use standard message form. Accuracy is of first importance. Both speed and dependability hinge on handling traffic with the care of a perfectionist and knowledge of nets and procedures gained from experience. Sending speed is secondary.

"Handling" a message always includes the transmission and receipt of radio acknowledgement (QSL) and entry of date, time and station call on the traffic as handled, for the purpose of record. All messages should be handled in standard ARRL form. *Within the U. S. A. and possessions, any kind of traffic may be handled as long as no form of compensation is accepted for use of the amateur station.* Third party traffic under certain treaty provisions is authorized only with Argentina (LU), Bolivia (CP), Brazil (PY), Canada (VE), Chile (CE), Costa Rica (TI), Colombia (HK), Cuba (CM/CO), Dominican Republic (HI), Ecuador (HC), El Salvador (YS), Greenland (XP calls only), Haiti (HH), Honduras (HR), Israel (4X4), Liberia (EL), Mexico (XE), Nicaragua (YN), Panama (HP), Paraguay (ZP), Peru (OA), Uruguay (CX), Venezuela (YV). Additional countries may be added to this list subsequent to publication, so watch "Happenings of the Month" in QST.

Messages should be accepted as sent from a relaying station. Only if the sending station is the originating station may they be refused because of incorrect form or other discrepancy. The proper procedure otherwise is to service the originator for correction of the fault prior to further relay. See "Service Messages," p. 12.

The operator should never make changes in the address or text of a message without proper authority. If it is felt that a change should be made, secure permission from the person who originated it, or send a message requesting permission to the originating station. If it seems necessary or urgent, a message may be delivered with appropriate notation, informing the originating station of this action.

The Amateur is Gentlemanly

He never knowingly uses the air for his own amusement in such a way as to lessen the pleasure of others. He abides by the pledges given by the ARRL in his behalf to the public and the Government.

When the sending station is using break-in, traffic can be sent in series without requiring acknowledgement at the end of each message. QSK is the proper signal to indicate this procedure is being followed.

A file of messages must be kept in accordance with FCC regulations. Only messages which can be produced shall be counted in the monthly reports and then only under the ARRL provisions for message counting.

Many operators find 'phone and RTTY as well as c.w. effective as a means of traffic handling. Much of the material to follow is of a basic nature, applicable to all modes. However, at the end of this section is a portion devoted to some special problems involved in handling traffic by voice. RTTY procedure is detailed in the ARRL *Operating Manual*.

GETTING FILLS

Sometimes parts of a message are not received correctly. In that case the interrogation (- - - -) is used between the last word received correctly and the first word received after the interruption. There is seldom any excuse for repeating the whole message to get a few lost words. Note the appropriate abbreviations for getting fills (AA, AB, BN, ADR, etc. See Section VII (this book) and use them in preference to all other methods. If "break-in" operation is used, fills are unnecessary.

RELAY PROCEDURE

Messages should be relayed by the fastest and most direct route available. Messages that are not complete in every respect should not be accepted.

Operators should not substitute abbreviations for words in the text of a message. Too often when this is done the message is delivered this way, and amateur abbreviations mean little or nothing to the layman.

Record the call of the station from whom received and/or to whom sent, plus the date and time, on every message. If these data are placed right on the message blank itself, there can never be any question about routing that cannot be answered.

MESSAGE FORM

Each message originated and handled should contain the following component parts in the order given:

- | | |
|---------------------------|----------------|
| (a) Number | (g) Time filed |
| (b) Precedence | (h) Date |
| (c) Handling Instructions | (i) Address |
| (d) Station of origin | (j) Text |
| (e) Check | (k) Signature |
| (f) Place of Origin | |

(a) Every message transmitted should bear a number. Keep a sheet with a consecutive list of numbers (beginning at 1) at your operating position. When a message is filed at your station for transmission, complete all parts of the preamble except the number, leaving this blank. When you send the message, assign a number to it from the number sheet, crossing out numbers on the sheet as they are used and making a notation, after the number, of the station to whom the message was sent and the date. Such a system is convenient for quick reference purposes. Most traffic men start with number 1 at the beginning of each year. When relaying, never change the number of any message.

(b) Every message has a precedence in amateur procedure. This will normally be "R" (Routine). It is a separate part of the preamble and is transmitted as such, *not as part of the number*. Other precedences are "Emergency" (never abbreviated) and "Priority." A set of definitions for ARRL precedences and how to use them is contained in ARRL Form 3, in every ARRL log book and available for the asking from ARRL.

(c) Handling Instructions (HX) are available prosigns for use when or if desired by the originator or the originating station, whenever special instructions are required in the handling of the message. In "Emergency" messages, compliance with HX is mandatory; in others, it is a courtesy only. A list of HX prosigns is included in ARRL Form 3, 9A and in every ARRL log book.

(d) The "station of origin" is the call of the station at which the message was first sent by amateur radio and is included so that handling stations will be able to communicate with the originator if something interferes with the prompt handling or delivery of the message.

(e) The "check" is the number of words and numerals in the text of a message. Handling stations should agree on the check before the message is considered handled. Full information on checking messages is given later.

(f) The "place of origin" is the name of the place (city or town) from which the message was started, *not necessarily* the location of the station of origin. The preamble of a message filed at League headquarters in Newington, Conn., might read as follows: NR 457 R WIINF CK 21 NEWINGTON CONN 2057Z JUNE 11.

If a message is sent to your station by mail or otherwise not filed in person, the preamble should show the place the message originally came from. If the message came to League head-

quarters by mail from Wiscasset, Maine, the preamble would read: NR 457 R WIINF CK 21 WISCASSET MAINE 2057Z JUNE 11. Any message received at an amateur station by *any* means other than amateur radio is an *origination* when put on an amateur circuit by that station.

(g) The time filed is the time at which the message is received at the station from which it is to be sent. Standard practice is to use GMT. This part of the preamble is *optional with the originating station*.

(h) The month and the day of the month that the message was filed at the originating station. The year is *not* included. *If the filing time is GMT, be sure the date agrees.*

(i) The address is the name, street and number, city and state of the party to whom the message is being sent. The telephone number, if known, should be part of the address. A complete address should always be given to insure delivery. When accepting messages for origination this point should be stressed.

In transmitting the message by c.w. the signal AA is used to separate parts of the address and the address is followed by BT before the text is started.

In street addresses where the words east, west, north, south are part of the address, spell out the words in full. Suffixes "th", "nd", "st", etc., should not be used. Example: "19 W 19th St" should be "19 West 19 St." "F St NE" should be "F St Northeast." It is *not* good practice for the *relaying* station to change address format, but the originating station should observe the above practices to insure clarity in retransmission.

(j) The text consists of the words in the body of the message. No abbreviations should be substituted for the words in the text of the message. The text follows the address and is set off from the signature by another BT.

(k) The signature is usually the name of the person originating the message. When no signature is given it is customary to include the words "no sig" in place of the signature to avoid confusion and misunderstanding. When there is a signature, it follows the BT at the end of the text. The abbreviation "sig" is not transmitted.

Use the symbol AR after the signature, followed by the letter B if there is more traffic to follow, or the letter N if you have no more.

COUNTING WORDS IN MESSAGES

The amateur message "check" is the count of the number of words in the *text only*. It is essentially an "as sent" count. While it is assumed that the rules of grammar and spelling will be followed, the check count is determined principally by the spacing used by the transmitting operator in sending the text. Since the first operator to transmit the message is the operator of the originating station, who *enters* the check in the preamble, this check should carry through to destination. The relaying operator has no authority to change the check unless it is definitely determined that the check as he received it is incorrect — then he should confirm with the transmitting operator before making the change. When such a change is made, the *original* check should remain in the preamble. Example: an original check of 10 corrected to 9 would be sent "10/9."

The check is a means for insuring the accuracy and completeness of your copy. It also indicates to the receiving operator how many words the message he is about to copy will contain.

All numbers, ciphers, mixed groups and punctuation count each as one in the check similarly, regardless of length. It is recommended amateur practice not to use punctuation, fractions or other unorthodox or seldom-used code symbols in messages as such, but rather to *spell these out* when used in the text of a message to avoid complications in checking.

The principle of counting words as sent can be illustrated by a few examples, as follows:

F E Handy.....	3 words
New York City.....	3 words
NYC.....	1 word
6L6G.....	1 word
A6ZB1.....	1 word
Fifty six.....	2 words

A few rules have to be observed in sending words so this principle of "counting as sent" will not be abused:

- (1) Make your spacing methodical and accurate.
- (2) Follow the dictionary whenever possible.
- (3) Do not waste time in traffic nets arguing about "how to count." The purpose of the "check" in amateur work is to confirm the number of words or groups in the text. QTB is a useful signal in confirming check. Once you are *sure* that you have copied it correctly, QSL the message and get on with the next one correcting the check when you relay the message.

In copying traffic, whether by pencil or typewriter it is quite easy, with a little practice, to count the words in the text as you copy. When using pencil, copy five words to a line. At the end

of the message, you can readily figure the number of words by the number of lines (plus how many words over) you copied. By typewriter, it is more convenient to copy ten words to a line, and this can easily be done by copying five words, hitting the space bar twice (instead of once), copying five more words, then line-spacing to begin a new ten-word line. At the end of the message a glance at the number of lines will show you how many words you copied. You can then query the sending operator if your figure does not agree with his.

When traffic is heavy and time is precious, it is not considered advisable practice to query a check unless you have reason to believe that a mistake was made, either in sending or copying.

ARL CHECK

ARL? means "Do you have the list of ARRL-Numbered Radiograms, and are you ready for such a message?" ARL (reply) then means, "I have the ARRL Numbered Radiogram list and I am ready for such a message." A list of the texts used for this purpose is included with every copy of the official ARRL Log Book, and additional lists can be obtained without charge from ARRL Headquarters. (Form 3.)

Messages containing ARL texts have the same form as any other message, except that the symbol ARL is used before the check. This symbol indicates that a spell-out number in the text of the message refers to a complete text bearing that number on the ARL list. The check following this symbol is, as on all messages, the *actual count* of the words in the text as sent. A simple example of such a message: NR 1 RWIAW CK ARL 2 NEWINGTON CONN MAR 2 (Address) BT ARL THREE BT JOHN AR.

If any station relaying the message does not have an ARL list, it is necessary to substitute the complete text for which the number in the text stands. In the above example, in such a case, the ARL would be omitted from the check, the check would be 7 instead of 2, and the text would be: AM PERFECTLY ALL RIGHT X DON'T WORRY.

ARL texts can be used along with other words in the text, if desired. In this case the ARL would appear in the preamble to indicate that such a text is included in the text of the message, and again the check would be a count of the actual words in the message. Suppose the originator of the above message wanted to add the words "Will be home soon" to the above message. This would change the check to ARL 7, and the text would then read: ARL THREE X WILL BE HOME SOON.

In delivering a message with an ARL text, one of course delivers the complete text. It is therefore very necessary that the symbol ARL be included with the check to avoid the possibility of delivery of a meaningless number to the addressee.

Use of ARL text is a special tool for special occasions. When used, it should be used properly to avoid delays and confusion on the part of handling stations.

SERVICE MESSAGE

Whenever a message is received which has insufficient address for delivery and no information can be obtained from the telephone book or the city directory, a service message should be written and sent to the station of origin asking for a better address. Service messages are also used to make any other inquiries concerning the status of a particular message the servicing station is holding. Since these communications are ham-to-ham, common amateur abbreviations are permissible.

When transmitting a service message, it is customary to indicate its nature by using the letters "svc" preceding the number in the preamble. Service messages should receive the same precedence as the message they are servicing.

COUNTING MESSAGES

All amateurs who handle traffic are invited to report their total message count monthly to their SCM (see p. 6, QST).

For counting purposes, traffic is divided into four categories, as follows:

Originated: Every message sent by amateur radio for the first time from your station.

Received: Every message received by amateur radio at your station. This includes all messages received, whether received for relay or received for delivery.

Relayed: Every message sent by amateur radio from your station that is not originated at your station.

Delivered: Every message delivered to the addressee other than yourself, your station, or someone on the immediate premises. This does not include messages addressed to yourself or your station which should count only as one received. It also does not include messages delivered after having been received by means other than amateur radio.

The traffic total shall be the sum of originated, received, relayed and delivered points. Note that in some cases the same message can be counted twice; for example, the same message

received by radio and then relayed to another station by radio is counted both in the *received* and *relayed* categories, while a message received by radio and then delivered is counted both in the *received* and *delivered* categories.

ARRL traffic totals may include all traffic handled on amateur frequencies with full data included in the standard form of message.

BRASS POUNDERS LEAGUE

A special QST listing and a monthly certificate award are available to those amateurs who make a certain number of traffic points each month. This is called the Brass Pounders League. The certificate is QSL-card size and is issued by the SCM to each amateur who reports the required number of traffic points each month. Requirements for BPL-listing and certificate award can be found in any current issue of QST.

A special medallion (see cut) is presented to each individual amateur who makes BPL the third time, provided (a) all traffic was handled only by the station owner, (b) on amateur frequencies, (c) in standard ARRL form and (d) was duly reported to the SCM, and recorded in QST.



BOOK MESSAGES

The "book" form of message may be used when two or more messages have identical parts. The principle involved is very simple. Those parts which are identical (the "fixed" parts) are sent first; then those parts which are different (the "variable" parts) are transmitted. Instead of starting with a message number (which is always one of the variable parts in a book), first indicate the number of messages in the book.

Example: You have four messages which are all identical except the number and the address. These can be transmitted as one message on c.w. as follows:

BOOK OF FOUR R WIAW 19 NEWINGTON CONN
DEC 30 BT
HOPE YOU WILL FIND AN OPPORTUNITY TO
HANDLE SOME TRAFFIC DURING THE SIMULATED
EMERGENCY TEST ON JANUARY 27 73 BT HART
ARRL BT

NR 1 E L BATTEY W4IA AA P O BOX 283 AA WAR-
RENTON VA BT

NR 2 J F ABERNETHY W4AKC AA 768 COLONIAL
DRIVE AA ROCK HILL SC BT

NR 3 ANDREW B CLARK W4IYT AA 41 LENAPE DR
AA MIAMI SPRINGS FLA BT

NR 4 JOHN F PORTER W4KGJ AA BOX 7295 AA
MIAMI 55 FLA AR END BOOK AR

On phone of course the c.w. abbreviations in the above examples are not used. Pauses in speech can be substituted for BT and AA, and abbreviations can be said in words. The above book message might be read on phone as follows: "Follows a book of four messages, WIAW, check 19, Newington, Connecticut, December thirty break. Hope you will find an opportunity to handle some traffic during the simulated emergency test on January 27, Seventy-three. Break Hart, ARRL. Number one, initial E (as in Edward) initial L (as in Lewis) Battey (I spell . . .), Post Office Box two eight three, Warrenton (I spell . . .), Virginia. Number two, . . . (etc.). End of book, no more."

It is good procedure to convert received messages into book form for relay if feasible and to separate them into complete messages if they are to be sent to different stations. It is bad procedure to use the word "same" in transmitting any message.

When transmitting or receiving in book form, count one point for each three message numbers. In the above example, variations of the point count might be as follows:

(1) WIAW gets credit for two originations when sending the book (because it has over three but less than six variable parts).

(2) The receiving station may get various credits for handling the book according to circumstances:

(a) If the message is relayed in the above form, the total count is four: two received and two relayed.

(b) If the message is mailed to each of the four addresses, the total count is six: two received and four delivered.

(c) If the message is dispatched by radio separately to each of the four addresses, the total count is six: two received and four relayed.

(d) Suppose the book is received by W4IYT, who telephones it to W4KGJ and relays it separately to W4IA and W4AKC. In this case, W4IYT will get two points for receiving

the book, one point for delivering it to W4KGJ and two points for relaying it separately (as two complete messages) to W4AKC and W4IA. His total count is therefore *five*: two received, one delivered and two relayed. Note that he does not get a delivered credit for delivering it to himself.

HANDLING TRAFFIC BY VOICE

The clarity with which the operator speaks is analogous to the skill with which a c.w. operator sends. It is just as hard to write down sloppily-spoken words as it is to copy sloppily-sent code. Inaccuracies of copy of a message sent by voice can usually be traced to (1) speaking too fast, (2) poor enunciation and phonetic troubles, or (3) failure of the transmitting operator to follow proper message form. Delays and confusion at the receiving end result from the inability of the receiving operator to write as fast as the transmitting operator speaks; from difficulty in understanding poorly pronounced words; and if improper form is used it only makes it more of a task for the receiver to organize his copy because he is unable to foretell what will be transmitted to him next. To avoid these troubles use a push to talk system, or single switch control of the receiver and transmitter. Speak one word at a time, enunciating carefully, at writing speed. Repeat unusual words and spell phonetically extraordinary words, initials, symbols, and uncommon names. Avoid all extraneous remarks (the receiving operator might write these down as parts of the message) unless absolutely necessary to the copying of the message. *Do not* use such expressions as "John, common spelling," "Missus, a married lady," or "black, as in the color." If the word is properly spoken, these explanatory remarks are unnecessary and could be confusing. Never make any allusions to any parts of the message, especially the text; reading other peoples' mail is unavoidable in handling traffic, but calling public attention to its contents is an unforgivable social transgression.

Use phonetics *only* when it is necessary. Many voice operators overdo this. When copy is "arm chair" it is usually necessary to phoneticize only very unusual words. Regarding phonetics, remember that their purpose is to make yourself understood.

ICAO WORD LIST FOR VOICE WORK

(Phonetic alphabet adopted by the International Civil Aviation Organization.)

A — ALFA	N — NOVEMBER
B — BRAVO	O — OSCAR
C — CHARLIE	P — PAPA
D — DELTA	Q — QUEBEC
E — ECHO	R — ROMEO
F — FOXTROT	S — SIERRA
G — GOLF	T — TANGO
H — HOTEL	U — UNIFORM
I — INDIA	V — VICTOR
J — JULIETT	W — WHISKEY
K — KILO	X — X-RAY
L — LIMA	Y — YANKEE
M — MIKE	Z — ZULU

Natural words and phrases can be used instead of abbreviations and Q Code in voice work. Self-adopted words for phonetics are confusing. Intelligibility as well as pride in your procedure calls for use of a standard word list, used only as necessary, of course. Example: W8CV . . . W 8 CHARLIE VICTOR.

Handling Traffic by RTTY

RTTY is a "natural" for handling record traffic, but because at the present time this is not widely done the established procedure is considerably less standard. Generally speaking, RTTY message-handling procedure should attempt to make a message look exactly like one which has been copied by c.w. or voice. However, there are a number of special problems involved, some of which are enumerated in the "Radio Amateur's Operating Manual." As RTTY becomes more widespread for traffic-handling, more definitive procedures will be used and included in this booklet.

VI — NETWORK ORGANIZATION

STARTING A NET

Amateurs can add much experience and pleasure to their own amateur lives and substance and accomplishment to the credit of all of amateur radio, when organized into effective interconnection of the cities and towns of a state, the states in an area in which coverage is desired, or other points.

The selection of suitable stations to be invited to work together is important. Operating ability is required. All individuals must be willing to contribute unselfishly to the success of the group objectives, permitting operations to be guided absolutely by the word of the net control station.

A common net operating frequency is mandatory. A net control station cannot keep track of the stations in the net when

they are scattered all over the band. In selecting a suitable frequency, care should be taken to select one which will provide adequate coverage of the area in question, one which is not already occupied by another net at the same time, and one on which all net stations can operate.

The time of the net meeting should be selected for the convenience of the net members, and/or for best propagation conditions to effect the desired coverage. Consideration should also be given, of course, to the amount of other network activity at that time on or near the frequency selected.

The ARRL official or organizer should not organize nets of stations haphazardly merely because a group of congenial fellows at any old place happen to work on the same frequency. That sort of net might offer temporary fun but would not be likely to be generally useful or fulfill maximum possible good for amateur radio or the community at large. Get a map (from the nearest gasoline station?) and set yourself an objective — then try to get stations in the cities and towns important to the coverage that is the organizational goal. Public service will be enhanced at the same time you get to know a bunch of operators that can become the very salt of the earth to each other. There will develop a justified pride in a smoothly working communications system, which is the joint property and cherished possession of *each member* of the group — a system beyond what any *one* member could create of his individual effort. Establishment of high morale and responsibility for the joint effort is the secret of circuit discipline, fun and SUCCESS.

NET CONTROL STATION

The efficiency with which network operation is accomplished depends almost entirely on the operating ability, signal strength, familiarity with procedure and mental agility of the Net Control Station — and therefore the net is no better than its NCS, no matter what the calibre of the operators in the net. A net control who cannot copy and send well wastes much time asking for and getting requests for repeats. If his signal is not loud enough to be heard by every net member, he must relay some of his instructions, which takes more time. If he is not familiar with the net procedure and proper message routing, he must spend some of the net's time making inquiries and in referring to his list of "QN" signals. If he has to take time to figure out what instruction to give next and how to give it, the entire net must stand by until he has completed his cerebrations.

Duty as NCS is generally assigned to the senior member of the net, but may be assigned to any station in the net which can best fulfill the duties. An RM or PAM may run the responsible post well or delegate the job to men with aptitude. As operators become experienced they should have opportunity to serve as ACTING NET CONTROL to familiarize each member with the duties and enable *any one of them* to act in that capacity in case of necessity.

If an NCS or Alternate should not take control within three minutes of the time set for beginning of drill, *any station present* should take charge and begin regular net operation, and remain in charge for the duration of the net. It is a waste of time for the acting net control to turn the net over to the regular NCS if the latter is late, and this should not be done if it can be avoided, for in turning over control it is necessary for the acting control to give the regular control the list of stations in the net plus the destinations of all traffic that has been reported in.

The NCS is charged with the clearing of traffic within the net, with the dispatching of internet traffic, and with maintaining order within the net. The authority of the NCS extends only to the operation of the net on the air, and is in no way concerned with the interior administration of the station, nor with its operation. *Within its scope, however, the authority of the NCS is absolute, its decisions are final and its instructions are strictly COMPLIED WITH.*

SUCCESS OR FAILURE OF ACTUAL NET OPERATIONS DEPENDS ON KEEPING THE NET OPERATING SWIFTLY AND SMOOTHLY BY EXERCISING THE POWERS VESTED IN THE NCS FOR THIS PURPOSE. NCS may break into net at any time if in his opinion it is necessary to aid the functioning of the net and may request any station to QRX in order to eliminate rag chewing, unauthorized transmissions, superfluous transmissions, to handle urgent or emergency traffic or situations, to eliminate QRM from outside net, to direct traffic or for any other reason. NCS shall keep an accounting during each net period of what stations report in and what traffic they have.

On a 'phone net the problem of maintaining discipline is a greater one. There is more inclination to ragchew because of the inherent nature of the mode of communication. However, if the net is to be respected by other amateurs it should show the proper restraint in this regard and its performance should exhibit snap and precision. In general, 'phone net drills can follow the same procedure as that prescribed herewith for all nets.

For Net Control Stations

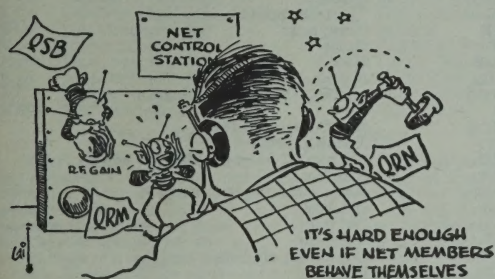
1. Call the net promptly at the appointed time.

2. Keep a written record of the situation and traffic list of each member.
3. Know where each net member is located and what traffic he can handle.
4. Excuse from the net promptly (or within a certain agreed time limit) after the roll call each net member who is clear (i.e., QRU both in and out, and thereafter excuse members promptly when they are cleared.
5. Keep your key under control. Hasty sending is usually sloppy sending. If operating 'phone, speak with clarity and deliberate enunciation.

NETWORK OPERATION

A theme of brevity in operating should be carried out in the entire set-up. The time for rag chewing is *after* the network exchanges are completed and the stations are free (QNF) instead of directed (QND) by the NCS. A net operating without any superfluous words in its operations will be automatically a much snappier and better all-around net. Every single word not absolutely needed may be dispensed with profitably. Net members should each have outlets and sources for traffic other than the net itself, either by schedules with other stations or by participation in other nets.

A single net member can cause a great amount of confusion and delay by improper or ill-advised practices. He may report into the net at the wrong time; he may fail to give his traffic list (or indicate "QRU") when reporting in; he may break in without an invitation from the NCS; he may call or engage one of the other members in conversation without the permission of the NCS; he may fail to respond promptly when the NCS calls him; or he may leave the net without notifying the NCS. All these faults, some of them seemingly minor, waste a net's time, and the time wasted and confusion caused is multiplied by the number of net members who are "off the ball."



Some nets have been organized for purposes other than traffic handling, such as technical forums, emergency drill, or just plain rag chewing, but practically always for any real communication purposes such as training, emergency, or utility to any agency, the fellows have come back to traffic handling as the real stuff of which communication is made. Nets in general cannot be successful if there is nothing to do. There must be some form of activity in which all member stations can participate, and traffic is admirably suited to this purpose.

Each member of the net should originate and handle his share of the traffic. Don't let one or two stations do all the work. If a particular net member has no outside schedule, reports into no other net, and originates no traffic himself, he has only himself to blame for the fact that he has little to do on the net.

Some rules for the individual net member:

1. Transmit only when invited to do so by the NCS, even though you only wish to "help."
2. Report into the net promptly at the appointed time.
3. Answer promptly when the NCS calls you, and do not leave the net without first notifying the NCS that you are so doing.
4. Know your "Q" signals, especially your special "QN" signals. Keep them posted at your operating position (copy free upon request).
5. Save all personal remarks and conversation until the net is free (QNF).

The exact form of network operation varies with the purpose and coverage of the net, and with the amount of time available. It is always a good idea to get all net members together occasionally for a *personal* discussion of ways and means of effecting efficiency in the net, if such get-togethers are practicable. In general, nets to be effective should stick strictly to business while the net is directed by a net control station. A great amount of satisfaction can be derived from operation in a net of "savvy" (not necessarily fast) operators. Conversely, there is nothing so discouraging as operation in a net in which confusion and vacillation reign supreme.

SPECIAL Q SIGNALS FOR C.W. NET USE

QNA	Answer in prearranged order.
QNB	Act as Relay Between ... and ...
QNC	All Net Stations Copy.
QND	Net is Directed.
QNE	Entire Net Please Stand By.
QNF	Net is Free.
QNG	Take over as net control station.
QNH	Your Net frequency is High.
QNI	Report Into Net or I Report Into Net.
QNJ	Can you copy ...?
QNK	Transmit message(s) (for ...) to ...
QNL	Your Net frequency is Low.
QNM	You are QRMing ... Please Stand By.
QNN	Who is net control station? Net control station is.....
QNO	Going Out of Net.
QNP	Unable to copy you (or.....).
QNQ	Move frequency to and wait for to finish handling traffic. Then send him traffic for
QNR	Answer ... and Relay (or Receive) traffic.
QNS	Following Stations in Net....
QNT	Leaving Net Temporarily (or for ... minutes) or I request to leave Net Temporarily, etc.
QNU	... has traffic for YOU; await instructions.
QNV	Establish contact with ... on this frequency. If successful, move to ... kc, and send him traffic for
QNW	Through Whom shall I relay message for ...?
QNX	You are Excused from Net or I request to be Excused.
QNY	Please shift to another frequency (or to ... kc.) to prevent QRMing other Net stations (or to clear traffic with ...).
QNZ	Zero beat your signal with mine.

VII - ABBREVIATIONS AND PREFIXES

Given below are a number of Q signals whose meanings most often need to be expressed with brevity and clearness in amateur work. (Q abbreviations take the form of questions only when each is sent followed by a question mark.)

QAV	Are you calling me? I am calling ...
QBT	Am I missing dots? You are missing dots.
QCM	Is there a defect in my transmission? There seems to be a defect in your transmission.
QDH	What is causing the present interference? The present interference is being caused by ...
QIF	What frequency is ... (station) using? ... (station) is using ... (frequency).
QRG	Will you tell me my exact frequency in kilocycles? Your frequency iskc.
QRH	Does my frequency vary? Your frequency varies.
QRI	How is the tone of my transmission? The tone of your transmission is ... (1, good; 2, variable; 3 bad).
QRJ	Are you receiving me badly? Are my signals weak? I cannot receive you. Your signals are too weak.
QRK	What is the readability of my signals (1 to 5)? The readability of your signals is ... (1 to 5).
QRL	Are you busy? I am busy or busy with (.....)
QRM	Are you being interfered with? I am interfered with.
QRN	Are you troubled by atmospherics? I am being troubled by atmospherics.
QRO	Must I increase power? Increase power.
QRP	Must I decrease power? Decrease power.
QRO	Shall I send faster? Send faster (.....words per min.)
QRS	Shall I send more slowly? Send more slowly (.....w.p.m.).
QRT	Shall I stop sending? Stop sending.
QRU	Have you anything for me? I have nothing for you.
QRV	Are you ready? I am ready.
QRW	Shall I tell.....that you are calling him? Please tell.....that I am calling him.
QRX	When will you call again? I will call you again at.....hours (onkc.).
QRZ	Who is calling me? You are being called by.....
QSA	What is the strength of my signals (1 to 5)? The strength of your signals is.....(1 to 5).
QSB	Does the strength of my signals vary? The strength of your signals varies.
QSD	Is my keying correct? Are my signals distinct? Your keying is incorrect; your signals are bad.
QSG	Shall I send.....telegrams (or one) at a time? Send.....telegrams at a time.
QSK	Can you hear me between your signals? I can hear you between my signals.
QSL	Can you give me acknowledgment of receipt? I give you acknowledgment of receipt.
QSM	Shall I repeat the last telegram I sent you? Repeat the last telegram you sent me.
QSO	Can you communicate with.....direct (or through)? I can communicate with.....direct (or through.....).
QSP	Will you relay to.....? I will relay to.....
QSV	Shall I send a series of VVV.....? Send a series of VVV.

QSW	Will you send on.....kcs.? etc. I will send on.....kcs., etc.
QSX	Will you listen for.....(call sign) on.....kcs? I am listening for.....on.....kcs.
QSY	Shall I change.....kilocycles without changing the type of wave? Change to.....kc. without changing type of wave.
QSZ	Shall I send each word or group twice? Send each word or group twice.
QTA	Shall I cancel nr.....as if it had not been sent? Cancel nr.....as if it had not been sent.
QTB	Do you agree with my number of words? I do not agree with your number of words; I will repeat the first letter of each word and the first figure of each number.
QTC	How many telegrams have you to send? I have.....telegrams for you or for.....
QTH	What is your position (location)? My location is.....by any indication)
QTR	What is the exact time? The time is.....
QTV	Shall I stand guard for you on.....kcs. attime? Stand guard for me.....etc.
QTX	Will you keep your station open for further communication with me? I will keep my station open for further communication with you.

Special Amateur Abbreviations

CQ	General call to any amateur for casual contact.
QST	General call preceding a message to all amateurs.

SIGNAL REPORTING

A standard system of reporting signals is recommended by the ARRL. The R-S-T system is an abbreviated method of indicating the main characteristics of a received signal, the Readability, Signal Strength, and Tone. The method of using the R-S-T system is extremely simple. The letters R-S-T determine the order of sending the report. In asking for this form of report, one transmits RST? or QRK? By voice: "How are you receiving me?"

Such a signal report as "RST 367" will be interpreted as, "Your signals are readable with considerable difficulty; good signals (strength); near d.c. note, smooth ripple."

THE R-S-T SYSTEM READABILITY

- 1—Unreadable.
- 2—Barely readable, occasional words distinguishable.
- 3—Readable with considerable difficulty.
- 4—Readable with practically no difficulty.
- 5—Perfectly readable.

SIGNAL STRENGTH

- 1—Faint signals barely perceptible.
- 2—Very weak signals.
- 3—Weak signals.
- 4—Fair signals.
- 5—Fairly good signals.
- 6—Good signals.
- 7—Moderately strong signals.
- 8—Strong signals.
- 9—Extremely strong signals.

TONE

- 1—Extremely rough hissing note.
- 2—Very rough a.c. note, no trace of musicality.
- 3—Rough low-pitched a.c. note, slightly musical.
- 4—Rather rough a.c. note, moderately musical.
- 5—Musically modulated note.
- 6—Modulated note, slight trace of whistle.
- 7—Near d.c. note, smooth ripple.
- 8—Good d.c. note, just a trace of ripple.
- 9—Purest d.c. note.

Special suffixes are recommended to be used with the

RST report to indicate signal characteristics:

- X... Crystal controlled signal characteristics
C... Chirpy signal
K... Key clicks on signal

EXAMPLES

By Telegraph: RST 359; RST 569X; RST 498C;
RST 569K; RST 599XK; RST 589CK.
The letters RST need not be sent, if it is clearly understood that the RST system is being used.

By Voice: Say simply, I am receiving you
Readability.....(1-5), Strength.....
(1-9)."

ABBREVIATIONS FOR C. W. WORK

Abbreviated standard procedure deserves a word in the interest of brevity on the air. Abbreviated practices help to cut down unnecessary transmission. However, make it a rule not to abbreviate unnecessarily when working an operator of unknown experience.

AA	All after
AB	All before
ABT	About
ADR	Address
AGN	Again
BCI	Broadcast interference
BCL	Broadcast listener
BK	Break; break me; break in
BN	All between; been
BUG	Semi-automatic key
B4	Before
C	Yes
CFM	Confirm; I confirm
CK	Check
CL	I am closing my station; call
CLD-CLG	Called; calling
CUL	See you later
CW	Continuous wave (i.e., radiotelegraph)
DLDD-DLVD	Delivered
DX	Distance
FB	Fine business; excellent
FREQ-FQV	Frequency
GA	Go ahead (or resume sending)
GB	Good-bye
GBA	Give better address
GE	Good evening
GG	Going
GM	Good morning
GN	Good night
GND	Ground
HI	The telegraphic laugh; high
HR	Here; hear
HV	Have
HW	How
LID	A poor operator
MSG	Message; prefix to radiogram
N	No
NCS	Net Control Station
ND	Nothing doing
NIL	Nothing; I have nothing for you
NR	Number
NW	Now; I resume transmission
OB	Old boy
OM	Old man
OP-OPR	Operator
OT	Old timer; old top
PBL	Preamble
PSE-PLS	Please
PX	Press transmissions
R	Received solid; all right; OK; are
RAC	Rectified alternating current
RECD-RCVD	Received
RPT	Repeat; I repeat
RTTY	Radioteletype
SIG	Signature; signal
SKED	Schedule
SRI	Sorry
SVC	Service; prefix to service message
TFC	Traffic
TMW	Tomorrow
TNX-TKS	Thanks
TT	That
TU	Thank you
TVI	Television interference
UR-URS	Your; you're; yours
VFO	Variable frequency oscillator
VY	Very
WA	Word after
WB	Word before
WRD	Word, words
WKD-WKG	Worked; working
WL	Well; will
WX	Weather
XMTR	Transmitter
XTAL	Crystal
YF (XYL)	Wife
YL	Young lady
ZB	Zero beat
73	Best regards
88	Love and kisses

A.R.R.L. TERMS

AREC	Amateur Radio Emergency Corps
ARPS	Amateur Radio Public Service Corps
BPL	Brass Pounders League
CD	Communications Department
CP	Code Proficiency

DXCC	DX Century Club
EC	Emergency Coordinator
FD	Field Day
LO	League Official
NTS	National Traffic System
OBS	Official Bulletin Station
OVS	Official V.H.F. Station
OO	Official Observer
OPS	Official Phone Station
ORS	Official Relay Station
PAM	Phone Activities Manager
RCC	Rag Chewers' Club
RM	Route Manager
SCM	Section Communications Manager
SEC	Section Emergency Coordinator
SS	Sweepstakes
TCC	Transcontinental Corps
WAC	Worked All Continents
WAS	Worked All States

PREFIXES

Prefixes assigned to different countries help in identifying the nationality of all calls heard on the air. Nations with amateur stations select some letter or letters from their assignment to use as a prefix to amateur calls.

The ARRL *Handbook* contains a listing of the alphabetical blocks assigned by the international conference to each nation from which all classes of stations are assigned prefixes. Refer to this list when necessary to identify the nationality of foreign and non-amateur stations.

The following prefixes are assigned to amateurs of the United States and Possessions or are under U. S. administration.

W-K	U. S.	KP4	Puerto Rico
KB6	Baker, Howland	KP6	Jarvis Island
	American Phoenix Islands		Palmyra Group
KC4	Antarctic; Navassa Id.	KR6	Ryukyu Ids.
KC6	Caroline Ids.	KS4	Swan, Roncador, Serrana
KG4	Guantanamo Bay	KS6	American Samoa
KG6	Mariana Ids.	KV4	Virgin Islands
KH6	Hawaiian Islands	KW6	Wake Group
KJ6	Johnston Island	KX6	Marshall Ids.
KL7	Alaska	KZ5	Canal Zone
KM6	Midway Islands		

VIII — FCC REGULATIONS

Observance of the FCC and International regulations governing amateur radio is very much an essential part of amateur operating. Through the years as amateur radio has become more popular and licensees more numerous, the regulations have become more and more complicated. Amateur regulations and how to qualify for the various amateur license grades are the subject of a separate publication called *The Radio Amateur's License Manual*. Since excerpts from the International Regulations applicable to amateurs and the complete FCC amateur regulations are printed therein, this information is not being duplicated herein. Get yourself a copy of the latest *License Manual*, complete with study questions for all amateur licenses and subject index for quick reference, and be familiar with your regulations. New editions of the *License Manual* are put out whenever extensive changes are made. Interim changes are printed in *QST* and bulletined over WIAW and the ARRL Official Bulletin Station system.

Observe the regulations! FCC does not have sufficient staff to monitor the amateur bands closely, and largely depends on us to behave ourselves. As long as this is the case it is indeed a great compliment; should it stop being the case, our stock will go down in the eyes of our regulatory agency. ARRL headquarters will be very pleased to answer any questions any amateur may have about FCC or International amateur regulations.

IX — MISCELLANY

SAFETY TO LIFE AND PROPERTY

Underwriters rules minimize life and fire hazards. In some sections policies state that transmitters may not be located on insured property without inspection by an underwriting bureau inspector and a proper rider attached to the policy.

Antenna construction: Antenna wires shall be kept well away from all other electrical circuits. No. 14 B & S may be used for up to 100 watts. Minimum for greater power is No. 12 and maximum need not exceed No. 7 for soft drawn copper.

Lightning protection: An arrestor or ground switch should be provided. The grounding conductor shall be at least as large as the lead-in, and in no case smaller than No. 14 B & S copper bronze or copper-clad steel. The ground wire need not be insulated. Run it in a straight line if possible. For operating grounds use copper strip not less than $\frac{3}{8}$ " by $\frac{1}{4}$ " thick (copper bronze or cu-clad steel) with girth at least $\frac{3}{4}$ ", such as a No. 2 B & S wire. Ground to water piping where available. Other permissible grounds: grounded steel frames of buildings, or other grounded metal work in the building, and artificial devices such as driven pipes, rods, plates, cones, etc. Gas piping shall not be used.

Lead-ins: The creepage and air gap distance shall be not less than three inches from inflammable surfaces. Lead-in shall be supported on insulators. A drilled window pane may be used in place of a bushing provided creepage distance is maintained.

Wiring: Under the following conditions wiring may be grouped in the same conduit, armored cable, electrical metallic tubing, metal raceway, pull box, junction box, or cabinet. (1) Power supply wires are introduced solely for supply power to the equipment to which the other wires are connected. (2) Wires other than power supply wires that run in conduit, armored cable, electrical metallic tubing, metal raceway, pull box, junction box, or cabinet with power supply wires are insulated individually or collectively in groups by insulation at least equivalent to that on the power supply wires — or the two sets of wires are separated by a lead sheath or other continuous metallic covering. (3) Terminals of these groups shall be spaced at least as much as the space between power supply terminals of opposite polarities, and means provided to guard connecting other conductors to power supply terminals.

Life hazard: When possible enclose set in a metal frame or separate it from the operating space by a barrier. Bread-board transmitters may be used if and when isolated from the operating position. Circuits in excess of 150 volts should not have parts exposed to direct contact.

DANGER — HIGH VOLTAGE should be marked prominently wherever exposed power supply leads or equipment subjected to high voltage at intervals is not enclosed in a barrier or otherwise isolated. The plate supply of even a low power transmitter is decidedly a source of danger, and to be handled with extreme care. It pays dividends to install from a safety standpoint throughout.

OPERATING CARE

In tuning up transmitters, switch to a simple dummy antenna. Use antenna coupler or transmatch to avoid radiation of harmonics of undue strength. Crystals must be examined for accuracy of frequency and possible spurious frequencies. Allow for drift, if near band edges. Power supply equipment must include adequate filtering and the mechanical arrangement also is important in avoiding vibration or modulation on the signal. A receiver that covers all amateur and commercial frequency bands is highly useful in checking the possible occurrence of parasites and strong harmonics when set up nearby with little or no antenna required. A good receiver so used makes the best monitor for constant observance of ones signal. A frequency meter or accurately calibrated reference standard separate from the transmitter, permits compliance with FCC's Sec. 97.75. Every 'phone station should have means to insure the transmitter is never modulated in excess of its modulation capability and gain controls should, as well, hold down the audio on ssb rigs to prevent splatter and flat-topping.

WIAW — GENERAL OPERATION

The complete WIAW operating schedule appears in the Operating News section of *QST* every month. Follow *QST* for current dates of Code Proficiency practice and qualifying runs.

TIME CONVERSION TO GMT

EST	GMT	CST	MST	GMT	PST
1900	0000*	1800	1700	0000*	1600
2000	0100	1900	1800	0100	1700
2100	0200	2000	1900	0200	1800
2200	0300	2100	2000	0300	1900
2300	0400	2200	2100	0400	2000
0000*	0500	2300	2200	0500	2100
0100	0600	0000*	2300	0600	2200
0200	0700	0100	0000*	0700	2300
0300	0800	0200	0100	0800	0000*
0400	0900	0300	0200	0900	0100
0500	1000	0400	0300	1000	0200
0600	1100	0500	0400	1100	0300
0700	1200	0600	0500	1200	0400
0800	1300	0700	0600	1300	0500
0900	1400	0800	0700	1400	0600
1000	1500	0900	0800	1500	0700
1100	1600	1000	0900	1600	0800
1200	1700	1100	1000	1700	0900
1300	1800	1200	1100	1800	1000
1400	1900	1300	1200	1900	1100
1500	2000	1400	1300	2000	1200
1600	2100	1500	1400	2100	1300
1700	2200	1600	1500	2200	1400
1800	2300	1700	1600	2300	1500

Greenwich Mean Time (GMT) is time at the zero or reference meridian. Time changes one hour with each change of 15° in longitude. EST, CST, MST and PST are 5, 6, 7 and 8 hours "earlier" than the time at the Greenwich (0°) meridian. They correspond to 75th, 90th, 105th and 120th meridians.

* or 2400. (2400 is associated with the date of the day ending; 0000 with the day just starting.)

Begin and end each transmission properly. Station called — "This is" or "From" (DE) — Your call. See Section I.

AN INVITATION

The American Radio Relay League invites you to become an active operating amateur. Your League's operating organization has a place for nearly any type of operating ability. There are appointments for observers, bulletin stations, traffic stations, v.h.f. stations and emergency stations. Leadership appointments are available in the traffic and emergency (public service) fields. There are contests for those competitively inclined. There are awards for DX, for code proficiency, for public service, for achieving many other miscellaneous operating goals. There are important elected posts which you might hold.

Amateur radio is operating. If you are not an operating amateur, you are missing out on 75% of the point in holding a license. If you *are* an operating amateur, you will find it impossible, at some point, to avoid coming in contact with an activity or an award or a program sponsored by ARRL.

Why fight it? It's organized for your benefit and your betterment, pretty much in accordance with the wishes of the majority of the amateur fraternity, along lines aimed at the enhancement of the stature of the amateur fraternity.

What are your interests? DXing? Try the DX Contest and DXCC. Traffic? The National Traffic System, the BPL and ORS/OPS appointments beckon you. Emergency preparedness? Look into AREC registration and organization. General and casual operating? Everything from the Rag Chewers Club to Worked All States on 2 meters is for you.

In short, the ARRL's operating program is a program of, by and for the radio amateur. You need it; it needs you. Come join the fun.



ARRL MEMBERS: Here is a form which may be sent to your SCM in applying for any Communications Department appointment. Select the appointment which fits your operating interests, license status, and qualifications. The SCM will be happy to consider your application for Official Relay Station, Official V.H.F. Station, Official Phone Station, Official Bulletin Station, or Official Observer. Appointments as Section Emergency Coordinator, as there are vacancies. Emergency Coordinator, Phone Activities Manager, and Route Manager also are available to amateurs of proven ability. The SCM is particularly interested to know of your interest in any of the leadership appointments.

Copy this form, or cut it out, and send direct to your Section Communications Manager (address in each OST), or to ARRL Headquarters, 225 Main Street, Newington, Conn. 06111, for routing to the SCM.

The Communications Department field organization includes the United States and its territories and Canada. Applications from outside these areas cannot be handled.

PRELIMINARY APPLICATION FOR APPOINTMENT

To: Section Communications Manager.....Section, ARRL

From.....Call.....Age.....

Street and Number*.....County.....

City*.....State or Province.....Zip.....

The class of my operator's license is.....No. of years licensed.....
(F.C.C. or D.O.C.)

I am interested in appointment as.....
(ORS; OVS; OPS; OBS; OO)

Would like to be considered for leadership appointment if or when vacancy exists.....
(SEC; EC; RM; PAM)

Favorite bands.....

My ARRL membership expires.....
month.....year

I understand that each ARRL appointment requires annual endorsement, and may be suspended or cancelled at the discretion of the Section Communications Manager for inactivity, lack of interest or failure to report regularly each month. Please send me detailed forms or further information necessary in connection with this application.

Date.....Signed.....

*Address for your appointment must be the same as your ARRL-QST mailing address.

OVS appointment is available to Novice and Technician Class, OBS and VHF-PAM to Technician Class. Higher class licensees may apply for any station or leadership appointments.